Distinguished delegates, ladies & gentlemen.

Let me at the outset welcome all of you to [illegible] city, the capital of Karnataka. It is [illegible] that this high level policy seminar for the South Asia Region on power sector reform and privatization is being held in [illegible] A city which is rapidly [illegible] as the leader on several fronts in the South Asia Region. Karnataka has been a pioneer in many ways [illegible] in the power sector. The very first hydel [illegible] station in South Asia was established at Shivasamudram as far back as in 1902 [illegible] what was then the longest transmission line from Shivasamudram to Kolar Gold Fields. Much before the rest of the World had spoken of [illegible] the [illegible] power [illegible] Karnataka had unbundled the generation of power from transmission and distribution in 1970 with the creation of Karnataka Power Corporation. The State is now again on the threshold of vital and far-reaching reforms in the power sector.

It is with a sense of [illegible] that I stand to address this [illegible] today. Some years ago, I had the [illegible] of [illegible] the power sector in Karnataka in my [illegible] as Deputy Chief Minister and Minister of Power. It was a time when the process of liberalization of the Indian economy had just commenced. In the power sector, it meant the [illegible] of private [illegible] in [illegible] of power. The entire country including Karnataka saw a spate of activity, each State vying with another to [illegible] Power Producers to invest in [illegible] of power. My sense of [illegible] comes from the fact that it has taken all of us - Planners, Policy makers and the [illegible] of reform - close to a decade, to [illegible] that [illegible] we started the reform process at the wrong end of the [illegible].

We have today come full circle. The buzz words whether in the world bank or elsewhere is that reform should begin with the distribution sector. It is just as well that this seminar is being held at a time when all of us need to learn from our past mistakes and chart the course for the future of reform in the power sector. Be that as it may, what genuine reform means, I dare say the [illegible] reforms is to bring about a change in our mind-set and begin

[illegible] of [illegible] the realm of reform in ways that would benefit the people of this country.

The blame for the [illegible] any sector and indeed of the power sector as well is often attributed to the absence of private [illegible] and the lack of market [illegible] That Governments have no business to be in business.

While this may be relevant to the [illegible] it would be too [illegible] to accept this [illegible] There are many failures that have contributed to a far from healthy power sector. It is not as simple as [illegible] I would urge, of "*more*" or "*less*" Government. The key question is the "*type*" of [illegible] that [illegible] Indeed, the State, the people and the market [illegible] seek the same [illegible] of [illegible] the quality of life of the common man and [illegible] the social and economic [illegible] of individuals. [illegible] reform in the power sector too, has to move in that direction and take a more inclusive view of the nature of economic [illegible]

What then is the end goal that we pursue? Quite simply we need to build a power sector that will provide to all citizens reliable and quality power on demand at a [illegible] price. This is not an end in itself. It will serve as a catalyst to [illegible] economic growth and to [illegible] the quality of life of all citizens of the Region.

As we embark on this [illegible] we need to share a common vision. A vision that is driven by the first principle that reform of the power sector should touch the lives of all people. It should transform the quality of life of our people and provide impetus for [illegible] the [illegible] that the people of South Asia have for [illegible] The success of reform and [illegible] of the power sector in South Asia as anywhere in the world will depend substantially as much on the Government of the day as on the markets. [illegible] of this [illegible] I hope will provide the frameworks for the deliberations of this seminar. The [illegible] virtues of pro-Govt. or [illegible] need not take too much of our time. Nor do we need to divide ourselves in the debate on the side of free markets on one hand or the roles of Govts on the other. Both are necessary and sufficient conditions for the success of any reform [illegible]

I am sure, all of you will agree that what Govt. can do and in fact will do is driven by the nature of that Govt. Similarly, markets do not operate in a vacuum. The [illegible] rise of the Asian tigers and the equally sharp fiscal crisis that gripped them more recently shows that markets can [illegible] or make [illegible] We therefore need to forge a [illegible] between Govts., its people and markets for the welfare of all.

Let me now turn to reform and [illegible] of the power sector that is [illegible] across countries in this region and several states in this country. I am a strong believer that the substance of reform should gain [illegible] over its form. Let me briefly dwell on the status of the power sector in Karnataka today. [illegible] The State like many others in this region is beset with power [illegible] Seriously [illegible] the impetus for economic growth. The quality and reliability of power is below par. The sector is a net deficit sector with serious difficulties in mobilising resources for infrastructure growth. But, by far, the most important consequence has been that the power sector constitutes the greatest strain on the state finances crowding out scarce resources and investments in social sectors like Health and Education.

When we look back at the role of the State in [illegible] poverty and [illegible] the quality of life, without doubt in the last 50 odd years, we have made [illegible] in food production, industrialisation and scientific education. Yet the spectre of poverty continues to haunt millions of people in this region. Large numbers of our citizens are outside of the market economy and without access to economic and social opportunities. This then is the principal challenge that all of us need to face [illegible] with the power sector for the reason that this sector can be converted into a net contributor to the State.

We have already put in place the mandatory steps necessary to transform this sector. The [illegible] Commission has been constituted and has since started [illegible] The process of [illegible] the State [illegible] Board and [illegible] from transmission and [illegible] has been [illegible] The next step of [illegible] distribution from transmission is under [illegible] We expect to [illegible] formation of [illegible] by the end of [illegible] far, the most important step that my Govt. has taken is the decision to [illegible] distribution. This was one of the first steps that the Govt. of Karnataka took soon after it was voted to

power. we propose to pursue this process of [illegible] and [illegible] the end [illegible]

[illegible] is also the first State to have examined the [illegible] of [illegible] independent power [illegible] In what I might call yet another [illegible] decision the Govt. of Karnataka decided not to extend [illegible] cover to any of the IPPs It is our considered view that in the [illegible] of cash flow [illegible], the State Electricity Board is not in a position to give [illegible] guarantees. Instead, we believe that steps need to be taken to [illegible] infuse private initiative, capital and management in the distribution of electricity. Private participation is not new to [illegible] Several of our districts [illegible] Hubli - Dharwad, Uttar Kannada had private licencees. I might add that they performed far better than our State [illegible]

When we talk of reforms I would urge this seminar to hasten but with caution More often than not it is fashionable to speak of tariff rationalisation and dis-continuance of subsidies as prerequisites to successful privatisation I must say, I am unable to agree for two reasons. First, an objective analysis of the power sector would show considerable inefficiencies that pervade all Electricity Boards, losses both technical and commercial are at unsustainable levels. There is little or no financial discipline. There is absence of [illegible] in financial management of the sector. However true as it might be, to argue that withdrawal of subsidies and rationalisation of tariffs is the panacea to all the ills of the power sector, is to my mind a simplistic solution. I have no doubt in my mind that tackling the problem of reducing technical loss, [illegible] theft and pilferage of power, [illegible] billing and collection efficiency, [illegible] best practices of the industry and [illegible] financial [illegible] are important steps for the success of reform. I believe that the efficiencies that can be brought about in this sector can generate additional resources which would substantially meet the needs of differential tariffs or for subsidies

The second issue that needs to be considered is the question of whether or not subsidies should continue and if yes, to what extend and to whom. It is almost axiomatic that subsidies should be extended to those who deserve it and that we must have a delivery system which will target these subsidies sharply. India continues to live in its villages. The farming community continues to constitute the largest numbers in this country and if I might add, in the South Asia Region. To my mind, subsidised electricity supply to [illegible] is not an

issue. Agriculture is subsidised the world over. Even advanced countries like USA, most of the Europe and closer home countries like Japan have consciously followed the policy of subsidising agriculture. Therefore, as a conscious policy and as a welfare State, subsidised electricity to agriculture is not bad per se. What needs to be done in the reform process is to make these subsidies explicit, transparent and well targeted.

This is something that needs to be discussed by this distinguished gathering to make the reform process inclusive of socio- economic concerns of the poor.

Yet another issue often spoken off as an imperative for reform and privatisation of power is what is described as demand side management. There are many votaries who actively argue for curtailment of supply of power to those who receive it free and to those who receive it at subsidised tariffs. There are many who believe that power should be supplied only to those who can pay. This I am afraid is a singularly short-sighted view to take. One must not lose sight of the fact that in the South Asian region in general and in India in particular, we are looking at per capita consumption of power at abysmally low levels of about 375-400 units as against the consumption patterns in excess of 3500 units per capita in the Western world.

I believe that electricity is a public good. It is a basic amenity and a pre-requisite for improving the quality of life. In our anxiety to reform the power sector, we should not unwittingly deny opportunities for economic growth to the masses of people who are economically and socially weak today. The reform process must also recognise that in the South Asian Region, there are a large number of villages and hamlets that are yet to be electrified. Extending rural electrification to every home however far flung or remote is an objective that it should not be lost sight of. In our State, we have decided to takeup a programme of electrifying the remaining 18,000 hamlets over the next five years.

Should we argue for curtailment of demand and discourage addition to capacity in generation, we also face the danger of being trapped in a low equilibrium economy.

Notwithstanding the social objectives, Karnataka has embarked on an ambitious reform and restructuring programme in the power sector. The end objective of this programme is to deliver reliable quality power to all our people. We have recently, signed an

MOA with the Govt. of India and committed ourselves to a rapid transformation of our generation, transmission and distribution activities. We will move aggressively on the reform front. As already mentioned, by December 2000, the process of unbundling of transmission and distribution should be completed and by December 2001, we are committed to privatise the distribution companies to induct the best technical, financial and administrative practices.

We recognise that the time is at hand to make rapid changes in the sector that will be a bold departure from the past. The corner-stone for good reforms is transparency and efficiency combined with equity. We will need to bring to the fore the symbiotic and reinforcing relationship between Governments and markets. We need together articulate a vision for reform that will set out a sustainable strategy for economic growth with social justice. This high level policy Seminar will provide the much needed support to implement the reform process in the power sector not just in India but, indeed in all countries of the South Asian Region. It has been an honour to address this august gathering and I wish all of you the very best.

R K PACHAURI

Dr Rajendra K Pachauri born in Nainital, India on August 20, 1940, assumed his current responsibilities as the Director of the Tata Energy Research Institute (TERI), New Delhi - a premier research institute providing professional support in the areas of energy, environment, forestry, biotechnology and the conservation of natural resources to government departments, institutions and corporate organisations worldwide - in 1981.

Commencing his career with the Diesel Locomotive Works, Varanasi where he held several managerial positions, Dr Pachauri joined the North Carolina State University, Raleigh, North Carolina, USA where he obtained a PhD in Industrial Engineering and a PhD in Economics and also served as Assistant Professor (August 1974 - May 1975) and Visiting Faculty Member (Summer 1976 and 1977) in the Department of Economics and Business. He did his MS (Industrial Engineering - major; Economics - minor) from the North Carolina State University, Raleigh, North Carolina, USA in 1972. He did his graduation from the Institution of Mechanical Engineers, London UK in 1963 and another from the Institution of Production Engineers, London, UK in 1966.

On his return to India, he joined the Administrative Staff College of India, Hyderabad as Member Senior Faculty (June 1975 - June 1979) and went on to become Director, Consulting and Applied Research Division (July 1979 - March 1981).

He has also been a Visiting Professor, Resource Economics at the College of Mineral and Energy Resources, West Virginia University (August 1981-August 1982); Senior Visiting Fellow, Resource Systems Institute, East-West Center, USA (May-June 1982); and Visiting Research Fellow, The World Bank, Washington, DC (June-September 1990). Recognising his vast knowledge and experience in the energy-environment field, the United Nations Development Programme appointed him as a part time Adviser to the Administrator for Energy and Sustainable Management of Natural Resources, an assignment he has held since June 1994.

His wide-ranging expertise has resulted in his being invited to join various international and national committees and boards, which on the international level include Member, Board of the International Solar Energy Society (ISES), 1991 onwards; Member, World Resources Institute (WRI) Council, 1992; Chairman, Work Group A - World Energy Council (WEC) Committee on Developing Countries, 1993 onwards; President (1988), Chairman (1989-90), International Association for Energy Economics (IAEE), Washington, D.C.; President, Asian Energy Institute, 1992 onwards.

Committees of the Government of India which he has served include Member, Panel of Eminent Persons on Power, Ministry of Power; Member, Delhi Vision - Core Planning Group; Member, Advisory Board on Energy (ABE), Government of India, 1983 to 1988 (The Board reported directly to the Prime Minister of India); Member,

National Environmental Council, Government of India under the Chairmanship of the Prime Minister of India, November 1993, April 1999; Member, Oil Industry Restructuring Group, "R" Group, Ministry of Petroleum and Natural Gas, Government of India, 1994.
He has also served on academic and research institute bodies including Member, Board of Governors, Shriram Scientific & Industrial Research Foundation, September 1987; Member, Exeuctive Committee of the India International Centre, 1985 onwards; Member, Governing Council of the India Habitat Centre, New Delhi, October 1987 onwards; Member, Court of Governors, Administrative Staff College of India, 1979-81.

In September 1997, Dr R K Pachauri was elected as a Vice Chairman of the Intergovernmental Panel on Climate Change (IPCC) for a period of 4 years. He has been active in several international forums dealing with the subject of climate change and its policy dimensions.

In January 1999, Dr R K Pachauri was appointed as Director, Board of Directors of the Indian Oil Corporation Limited (a Fortune 500 company) for a period of 3 years.

In April 1999, Dr R K Pachauri was appointed as the Member, Board of Directors of the Institute for Global Environmental Strategies (IGES), Environment Agency, Government of Japan for a period of 3 years.

He is also author of 21 books and several papers and articles.

James Clad

Mr. Clad, CERA Director, Asia Pacific Energy Service, is a distinguished expert on the politics and economics of Asia. He currently holds the Henry R. Luce Research Professorship of Southeast Asian Studies at Georgetown University's School of Foreign Service, but has worked in Asia for over two decades as a business analyst, diplomat, journalist, and lawyer. Past positions include senior postings across Asia for the *Far Eastern Economic Review*; appointments in Washington, D.C., as Senior Associate at the Carnegie Endowment and the Woodrow Wilson International Center for Scholars; and diplomat's tours in India and Indonesia. His books include *After the Crusade: American Foreign Policy for the Post-Superpower Age* (1995) and *Behind the Myth: Business, Money & Power in Southeast Asia* (1991) was one of the very few that revealed weaknesses in the financial and political fundamentals of Asian capitalism before the 1997–98 financial crisis. A past President of the Foreign Correspondents' Association of Asia and a recipient of postgraduate fellowships from Harvard University and St. Anthony's College, Oxford. Prof. Clad served on the *Washington Quarterly* board of editors from 1995 to 1998. He speaks regularly to the media about Asian affairs, including on "World Report." Prof. Clad is a US Committee member of the Council for Security Cooperation in the Asia-Pacific and also belongs to the London-based Institute for International and Strategic Studies. He is based in CERA's Washington office.

New Paradigms - After the East Asian Economic Crisis

Prof. James Clad

Director, Cambridge Energy Research Associates

REFORM: NO PROBLEM WITH CONCEPT

- Little principled objection to 'reform'
- A culture of accumulated losses and padded costs already well in place in much of Asia's power industry well before onset of financial crisis
- Meanwhile, increasingly more emphatic research results buttressing belief that a poor policy environment forces down returns on investment. (e.g., "*The Forgotten Rationale for Policy Reform: The Productivity of Investment Projects,*" in Quarterly Journal of Economics

Contd.

* This builds on well-established research showing strong correlation between broad growth and infrastructure, esp. provision of power
* Key elements of reform—
  a) functional unbundling;
  b) back-out of gov't ownership of generation/ transmission/ distribution,
  c) insulating regulators from direct gov't supervision; and
  d) commercial pricing)–are by now broadly similar

Contd.

...All ideas in play before the financial crisis...

* But... broader systemic illiquidity after 1997 financial crisis has *not* forced the pace. The evidence: PLN, EGAT, Tenaga Nasional, Napcor. Note Singapore Light & Power by way of contrast
* Demand/supply deficit more acute in South Asia, with esp. harmful impact on industrial production

CHALLENGE & RESPONSE: AN INTERIM CHECKLIST

- The Crisis and price volatility knocked stuffing out of PPAs; why contract to pay prices higher than market? Indonesia, Pakistan, and collateral damage to ECAs, Exim
- This has clouded future of political risk providers; US debate on future of MLAs
- With bank flows strongly net-negative during 1998-99, developed power markets saw virtuoso and huge financing arranged in context of rapid restructuring of power industry

Contd.

- Note esp. US experience during 1999-2000; factors include first-up effort to add share value, deepening experience, and ability to work in very mature, permissive market
- In Asian E&P, some firms seeking downstream power station positions to push gas development projects through to closure. (BP-Amoco's Great Yarmouth project high leveraging linked to connecting delivered gas price to merchant power price.)

Contd.

* Impact of M&A's--in E&P as well as power developers. More M&A activity among US power firms this year? Edison Mission, NRG, Reliant, Southern and AES. Contrast to Europe--many entrenched firms like EGF; no clarity about future regulatory regime
* Stranded Fuel: Gas pipelines, regional politics, and prospects for take & pay
* Stranded Fuel: LNG losing anchor contracts

RESISTANCE TO REFORM

* Waiting for Bailout: The NPL story
* Foreign Devils at the Gate: Myth and Reality
* Going to the bourse? Could Asian power markets structure deals with enough equity to make investment grade? Note incorporation of tax-avoiding leasing techniques in overall financing packages
* Privatisation--a modest scorecard, in whatever sector

Contd.

* Public Refinancing of debt: 'Nationalisation' by any other name? Patronage and IBRA, FRA, and Dana Harta/Dana Modal. Refinancing the *chaebols* in Korea
* What Fate Unbundling? Little functional disaggregation achieved. Note Indonesian example; the 'reorganisation' of PTT, resistance by Napcor. India?
* PARADIGMS?

POWER PROJECTS AND THE LONGER TERM

* OVERHANG: One third of global installed capacity reaching 40 year life span by 2010--- expect continuation of turbine delivery lag time
* FINANCING: 'Economic fundamentals' less determinative of merchant power plant financing than before--management experience and contractor's track record in completing projects on time becoming more important as margins squeezed by competition
* EMERGING ENERGY VALUE-CHAIN TRENDS, including
  - gas-driven regionalisation of SE Asian energy markets;
  - slow but measurable diversification of ownership; and
  - steady convergence of gas and power.

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South Asia

Towards High Quality Electricity Service in South Asia: Achievements & Future Directions

Alastair J. McKechnie
Director, Energy Sector Unit,
South Asia Region

World Bank
South Asia

Why Reform & Privatize Electricity in South Asia?

- Chronic supply shortages.
- Low household access to electricity.
- Bankrupt power utilities.
- Large scale theft of electricity.
- Electricity bills don't get paid.

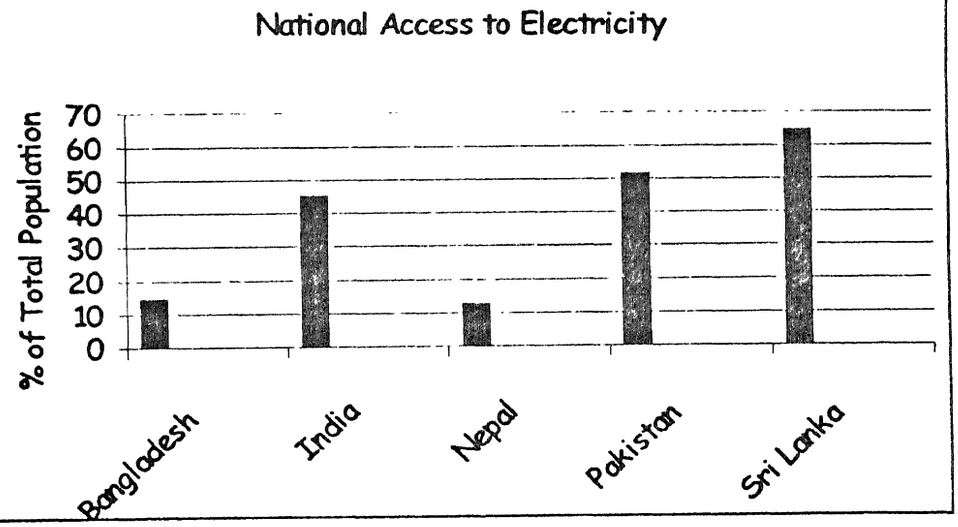
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Chronic Power Shortages

- Energy deficit India: about 10% ...
- Peak deficit India: about 20% ...
- Cost of unserved energy
  - Between 3-4 to 22 Indian Rs.
  - Industry: about 50% captive generation
- Cost for the economy
  - 0.5 to 1.0 percent of GDP in Bangladesh

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Most Households in South Asia Are Not Connected



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Selected Financial Indicators

	Losses (%)	Accounts Receivable (days)	Debt Service Coverage Ratio	Self Financing Ratio (%)
India				
UP	42	350	0 1	-52
Haryana	33	145	1	<0
Rajasthan	42	76	1.1	5
Bangladesh				
BPDB	17	412	0 7	-29
DESA	28	421	-0.4	-4
Nepal				
NEA	23	114	1.5	10.1
Pakistan				
WAPDA	25	133	1.2	40.4
KESCO	39	190	-0.8	-314.7

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Why has electricity supply failed in South Asia?

Governance issues:

- Relation between government & utilities.
- Relation between employees & customers.
- Social obligations: patronage - loyalty, money - protection.
- Corruption & theft.
- Business orientation lacking.
- Little customer orientation.

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The Challenges

- Demand could double in 15 years
  - Growth of population (2 billion by 2050?)
  - Urbanization increases
  - Per capita incomes rise
  - Demand for better electricity services
- Total annual investment needs: $ 100s billions...

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The Challenges

- Donor and official finance will not grow.
- Funding from state budget will shrink.
- Investors will be selective.
- Environmental and social standards will tighten.

How to meet these challenges?

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Proposed Key Principles for Power Sector Reform

- Reform distribution & revenue collection and meter all consumers.
- Privatization is essential, not optional.
- Financial workout linked to reform.
- Refocus role of government.
- Competition wherever possible.
- Transparent, predictable, independent, law-based regulation.

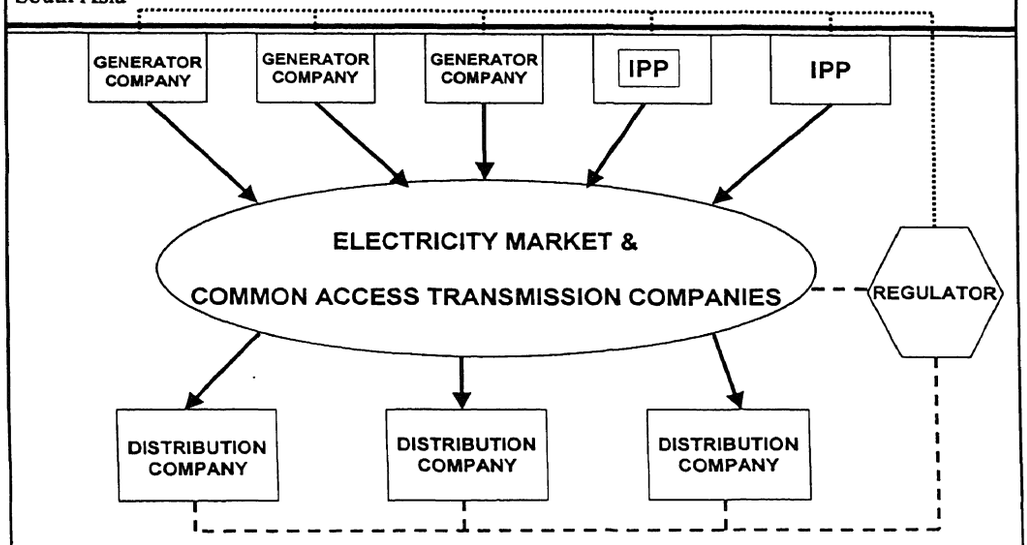
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Power Reform in South Asia: Typical Sequence

- Unbundle vertically integrated utilities.
- Corporatize new utilities under general company law.
- Commercialize management and operations.
- Create independent regulators.
- Privatize distribution companies.
- Encourage private investment in new facilities (especially generation).
- Further dis-invest.
- Establish competitive electricity markets.

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The Restructured Sector



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Some Lessons of Experience

- Reforms must be owned.
- Champions of reform a must.
- Political support at highest level.
- Clear objectives and communication.
- Irreversible as possible -- by change in law.
- Implement reform in quantum leaps -- no gradualism.
- Financial restructuring and public finance .
- A long and difficult process !

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Emerging Issues in Power Reform:

- Improving Fiscal condition of sector.
- Government interference in tariffs, etc.
- Investor interest in privatization.
- Opening electricity markets.
- Achieving private investment in generation.
- Rationalizing & targeting subsidies.
- Social and environmental issues.
- Improving electricity access.

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Emerging Issues (1) Privatization

- Regulatory design:
  - independence of regulator?
  - too cost plus?
  - basis for tariff setting -- price cap?
- Privatization strategy:
  - attracting strategic investors.
  - balancing risks between investor & government.
  - dealing with uncertain information on losses, etc.
  - size of companies and initial financial conditions.
  - Faster privatization of transmission?

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Emerging Issues (2) Electricity Markets

- Transition to competitive power markets:
  - Sufficient attention to creating wholesale markets?
  - Clear strategies for establishing markets?
  - Dealing with IPP & other stranded costs.
- Balancing supply and demand:
  - impact of eliminating theft - is there a power shortage?
  - will sufficient investment in generation take place?
  - What if any guarantees are needed?
  - International electricity trade.

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Emerging Issues (3) Subsidies & Tariff Rebalancing

- Households & agriculture subsidized by commerce and industry.
- Industry shifting to autoproduction.
- Subsidies don't benefit poor.
- Who benefits from irrigation subsidies?
- Subsidize access, including to cooking fuels, not consumption.

Mansoor Dailami

Mr. Dailami is Lead Economist and team leader of the Infrastructure Finance group of the World Bank Institute's (WBI) Governance, Finance, and Regulatory Reform Division. Mr. Dailami has been with the World Bank for eleven years, where he has worked in the South Asia, Africa, Middle East, and Latin America regions. Mr. Dailami has served as a task manager of the Bank's major adjustment and financial sector loans to India, headed the Economic Unit of the Bank's field office in India, and has been involved in infrastructure project financing. Mr. Dailami received his Ph.D. in Economics from Harvard University in 1978. Before coming to the World Bank, Mr. Dailami worked at the United Nations Secretariat in New York, the Massachusetts Institute of Technology and New York University.

SESSION 2
POLICY AND REFORM INITIATIVES: GLOBAL & REGIONAL PERSPECTIVES

APPLICATION OF 73rd AMENDMENT FOR EFFICEIENT MANAGEMENT OF RURAL ELECTRICITY CONSUMERS

BY

D. N. PANT
EXECUTIVE ENGINEER
UPSEB

73rd Amendment of constitution has placed distribution of electricity under the jurisdiction of GRAM PANCHAYAT and BLOCK PUNCHAYAT as detailed in the 11th schedule of constitutional amendment act. UPSEB had an installed capacity of 263.5 MW in 1959, which has now grown to an installed capacity of plus 6000 MW. UP with a geographical area of about 3 Lakh Sq.Kms and pobulation of plus 14 Lakhs has about 11 Lakh villages (112804), out of which about 84353 were electrified (ending 3/95) and No. of P.T.W's electrified in U.P. was about 7 Lakhs (706404 ending 3/95). The percentage of energy consumption in Agricultural Sector is about 28% of total sale of energy. U.P. with total of about 60 Lakh consumers of different categories and about 13,000 MW of connected load has a per canita consumption figure of about 186 units, standing 5th in the countrywith PUNJAB standing at the top with a figure of 703 units of per capita power consumption, the All India average being about 300 units. Energy sold to agricultural consumers ending93-94 was about 78000 GWH at the rate of P 31.99/unit and the arrears to berealised from ;agricultural consumers was about Rs. 120 Crores. With an average tariff for all category of consumers being 111.6 P/Kwh. The tariff for Agriculturalconsumers being 3.1P/unit for KARNATAKA, being lowest. The highest tariff for agricultural consumers is 33.8P/unit for HARYANA. The effeciency

Contd:....2

of pumping sets in Agricultural sector is 25% and I.S. 7538 specifies the Indian Standards for pump sets, which are seldom used by rural community.

It has therefore become essential that distribution andrevenue realisation from rural/agricultural consumers is placed in the hands of a unit other than the normal electric utility supplying power to Urban areas.

The 73rd **PANCHAYATI RAJ** amendment gives a consitutional background for initiating such an; action and a programme as detailed below is proposed for implementation of such a proposal

1. A meeting of all executive engineers of distribution division should be called at Zonal H.Q's for explaining the inherent features of 73rd Amendment and its application to rural electricity consumers.

2. The executive engineers should be asked to identify the 11 KV feeders emanating from 33 KVS/S's which feed exclusively to rural load.

3. In case there are some mixed feeders, the rural load has to be excluded from such feeders and more no. of independent rural feedershave to be identified and segregated.

4. The segregated rural feeders from 33 KV S/S's or S/S's of higher voltage rating have, to be properly metered.

Contd:....3

5. Thereafter the transfer of such feeders together with the staff for its proper running and maintenance has to be undertaken to concerning **GRAM PANCHAYAT/BLOCK PANCHAYAT** etc.

6. The service conditions of staff so transferred to Gram Panchayat/Block Panchayat may be maintainedas before.

7. The category of staffto be transferred to Gram panchayat/ Block panchayat may include the lineman with helper, the Meter readers,Junior Meter Testers, Billing Clerks and the revenue realisation unit together with Junior Engineers, wherever necessary.

8. Monthly meter reading and raising of electricitybills and the realisation of revenue shall come under the perivew of Gram Panchayat and the concerning highest elected/nominated or Govt. Authority working under Gram Panchayat/Block Pancha;yat, will be their immediate superiors.

9. Similarly maintenance of lines and transformers and replacement of damaged transfermers, meters of consumers shall be carried out by the staff so transferred to Gram Panchayat.

10. Any elated problems likely to be faced in the implement-ation of this plan can be discussed in the proposed meeting of Executive Engineers of distribution divisions and their solutions arived at.

The executions of above plan will be in line with the constitutional amendment and also in tune with the

demand of personnel engaged in the working electric utilities.

The payment of cost of electricity so passed for distribution in the jurisdiction of Gramm Panchayat, shall be made monthly on the basis of joint meter reading of meters exclusively installed on rural feeders at 33 KV S/S's, by the Gram Panchayat to the Electric utility. The collection of revenue realisation from consumers within the Gram Panchayat and its management shall be looked after by the Gram Panchayat.

THE CONSTITUTION (SEVENTY-THIRD AMENDMENT) ACT, 1992[1]

[*20th April, 1993*]

An Act further to amend the Constitution of India

Be it enacted by Parliament in the Forty-third Year of the Republic of India as follows:—

1. Short title and commencement.—(1) This Act may be called the Constitution (Seventy-third Amendment) Act, 1992.

(2) It shall come into force on such date[+] as the Central Government may, by notification in the Official Gazette, appoint.

2. Insertion of new Part IX.—After Part VIII of the Constitution, the following Part shall be *inserted*, namely:—

'PART IX

THE PANCHAYATS

243. Definitions.—In this Part unless the context otherwise requires,—

(*a*) "district" means a district in a State ;

(*b*) "Gram Sabha" means a body consisting of persons registered in the electoral rolls relating to a village comprised within the area of Panchayat at the village level ;

(*c*) "intermediate level" means a level between the village and district levels specified by the Governor of a State by public notification to be the intermediate level for the purposes of this Part ;

(*d*) "Panchayat" means an institution (by whatever name called) of self-government constituted under Article 243-B, for the rural areas ;

(*e*) "Panchayat area" means the territorial area of a Panchayat ;

(*f*) "population" means the population as ascertained at the last preceding census of which the relevant figures have been published ;

(*g*) "village" means a village specified by the Governor by public notification to be a village for the purposes of this Part and includes a group of villages so specified.

243-A. Gram Sabha.—A Gram Sabha may exercise such powers and perform such functions at the village level as the Legislature of a State may, by law, provide.

1 Received the assent of the President on April 20, 1993 and published in the Gazette of India, Extra., Part II, Section 1, dated 20th April 1993.

\+ Came into force w.e.f. 24-4-93 vide S.O. 267(E), dt. 24-4-1993.

243-B. Constitution of Panchayats.—(1) There shall be constituted in every State, Panchayats at the village, intermediate and district levels in accordance with the provisions of this Part.

(2) Notwithstanding anything in clause (1), Panchayats at the intermediate level may not be constituted in a State having a population not exceeding twenty lakhs.

243-C. Composition of Panchayats.—(1) Subject to the provisions of this Part, the Legislature of a State may, by law, make provisions with respect to the composition of Panchayats :

Provided that the ratio between the population of the territorial area of a Panchayat at any level and the number of seats in such Panchayat to be filled by election shall, so far as practicable, be the same throughout the State.

(2) All the seats in a Panchayat shall be filled by persons chosen by direct election from territorial constituencies in the Panchayat area and for this purpose, each Panchayat area shall be divided into territorial constituencies in such manner that the ratio between the population of each constituency and the number of seats allotted to it shall, so far as practicable, be the same throughout the Panchayat area.

(3) The Legislature of a State may, by law, provide for the representation—

(*a*) of the Chairpersons of the Panchayats at the village level, in the Panchayats at the intermediate level or, in the case of a State not having Panchayats at the intermediate level, in the Panchayats at the district level ;

(*b*) of the Chairpersons of the Panchayats at the intermediate level, in the Panchayats at the district level ;

(*c*) of the members of the House of the People and the members of the Legislative Assembly of the State representing constituencies which comprise wholly or partly a Panchayat area at a level other that the village level, in such Panchayat ;

(*d*) of the members of the Council of States and the members of the Legislative Council of the State, where they are registered as electors within—

(*i*) a Panchayat area at the intermediate level, in Panchayat at the intermediate level ;

(*ii*) a Panchayat area at the district level, in Panchayat at the district level.

(4) The Chairperson of a Panchayat and other members of a Panchayat whether or not chosen by direct election from territorial constituencies in the Panchayat area shall have the right to vote in the meetings of the Panchayats.

(5) The Chairperson of —

(*a*) a Panchayat at the village level shall be elected in such manner as the Legislature of a State may, by law, provide, and

(*b*) a Panchayat at the intermediate level or district level shall be elected by, and from amongst, the elected members thereof.

243-D. Reservation of seats.—(1) Seats shall be reserved for—

(*a*) the Scheduled Castes ; and

(*b*) the Scheduled Tribes,

in every Panchayat and the number of seats so reserved shall bear, as nearly as may be, the same proportion to the total number of seats to be filled by direct election in that Panchayat as the population of the Scheduled Castes in that Panchayat area or of the Scheduled Tribes in that Panchayat area bears to the total population of that area and such seats may be allotted by rotation to different constituencies in a Panchayat.

(2) Not less than one-third of the total number of seats reserved under clause (1) shall be reserved for women belonging to the Scheduled Castes or, as the case may be, the Scheduled Tribes.

(3) Not less than one-third (including the number of seats reserved for women belonging to the Scheduled Castes and the Scheduled Tribes) of the total number of seats to be filled by direct election in every Panchayat shall be reserved for women and such seats may be allotted by rotation to different constituencies in a Panchayat.

(4) The offices of the Chairpersons in the Panchayats at the village or any other level shall be reserved for the Scheduled Castes, the Scheduled Tribes and women in such manner as the Legislature of a State may, by law, provide :

Provided that the number of offices of Chairpersons reserved for the Scheduled Castes and the Scheduled Tribes in the Panchayats at each level in any State shall bear, as nearly as may be, the same proportion to the total number of such offices in the Panchayats at each level as the population of the Scheduled Castes in the State or of the Scheduled Tribes in the State bears to the total population of the State :

Provided further that not less than one-third of the total number of offices of Chairpersons in the Panchayats at each level shall be reserved for women :

Provided also that the number of offices reserved under this clause shall be allotted by rotation to different Panchayats at each level.

(5) The reservation of seats under clauses (1) and (2) and the reservation of office of Chairpersons (other than the reservation for women) under clause (4) shall cease to have effect on the expiration of the period specified in Article 334.

(6) Nothing in this Part shall prevent the Legislature of a State from making any provision for reservation of seats in any Panchayat or offices of Chairpersons in the Panchayats at any level in favour of backward class of citizens.

243-E. **Duration of Panchayats etc.**—(1) Every Panchayat, unless sooner dissolved under any law for the time being in force, shall continue for five years from the date appointed for its first meeting and no longer.

(2) No amendment of any law for the time being in force shall have the effect of causing dissolution of a Panchayat at any level, which is functioning immediately before such amendment, till the expiration of its duration specified in clause (1).

(3) An election to constitute a Panchayat shall be completed—

(*a*) before the expiry of its duration specified in clause (1) ;

(*b*) before the expiration of a period of six months from the date of its dissolution :

Provided that where the remainder of the period for which the dissolved Panchayat would have continued is less than six months, it shall not be necessary to hold any election under this clause for constituting the Panchayat.

(4) A Panchayat constituted upon the dissolution of a Panchayat before the expiration of its duration shall continue only for the remainder of the period for which the dissolved Panchayat would have continued under clause (1) had it not been so dissolved.

243-F. **Disqualifications for membership.**—(1) A person shall be disqualified for being chosen as, and for being, a member of a Panchayat—

(*a*) if he is so disqualified by or under any law for the time being in force for the purposes of elections to the Legislature of the State concerned :

Provided that no persons shall be disqualified on the ground that he is less than twenty-five years of age, if he has attained the age of twenty-one years ;

(*b*) if he is so disqualified by or under any law made by the Legislature of the State.

(2) If any question arises as to whether a member of a Panchayat has become subject to any of the disqualifications mentioned in clause (1), the question shall be referred for the decision of such authority and in such manner as the Legislature of a State may, by law, provide.

243-G. **Powers, authority and responsibilities of Panchayats.**—Subject to the provisions of the Constitution, the Legislature of a State may, by law, endow the Panchayats with such powers and authority as may be necessary to enable them to function as institutions of self-government and such law may contain provisions for the devolution of powers and responsibilities upon Panchayats at the appropriate level, subject to such conditions as may be specified therein, with respect to—

(*a*) the preparation of plans for economic development and social justice ;

(*b*) the implementation of schemes for economic development and social justice as may be entrusted to them including those in relation to the matters listed in the Eleventh Schedule.

243-H. Powers to impose taxes by, and Funds of, the Panchayats.—The Legislature of a State may, by law,—

(*a*) authorise a Panchayat to levy, collect and appropriate such taxes, duties, tolls and fees in accordance with such procedure and subject to such limits ;

(*b*) assign to a Panchayat such taxes, duties, tolls and fees levied and collected by the State Government for such purposes and subject to such conditions and limits ;

(*c*) provide for making such grants-in-aid to the Panchayats from the Consolidated Fund of the State ; and

(*d*) provide for constitution of such Funds for crediting all moneys received, respectively, by or on behalf of the Panchayats and also for the withdrawal of such moneys therefrom,

as may be specified in the law.

243-I. Constitution of Finance Commission to review financial position.—(1) The Governor of a State shall, as soon as may be within one year from the commencement of the Constitution (Seventy-third Amendment) Act, 1992 and thereafter at the expiration of every fifth year, constitute a Finance Commission to review the financial position of the Panchayats and to make recommendations to the Governor as to—

(*a*) the principles which should govern—

(*i*) the distribution between the State and the Panchayats of the net proceeds of the taxes, duties, tolls and fees leviable by the State, which may be divided between them under this Part and the allocation between the Panchayats at all levels of their respective shares of such proceeds ;

(*ii*) the determination of the taxes, duties, tolls and fees which may be assigned to, or appropriated by, the Panchayats ;

(*iii*) the grants-in-aid to the Panchayats from the Consolidated Fund of the State ;

(*b*) the measures needed to improve the financial position of the Panchayats ;

(*c*) any other matter referred to the Finance Commission by the Governor in the interests of sound finance of the Panchayats.

(2) The Legislature of a State may, by law, provide for the composition of the Commission, the qualifications which shall be requisite for appointment as members thereof and the manner in which they shall be selected.

may, by law, confer on them.

(4) The Governor shall cause every recommendation made by the Commission under this article together with an explanatory memorandum as to the action taken thereon to be laid before the Legislature of the State.

243-J. Audit of accounts of Panchayats.—The Legislature of a State may, by law, make provisions with respect to the maintenance of accounts by the Panchayats and the auditing of such accounts.

243-K. Elections of the Panchayats.—(1) The superintendence, direction and control of the preparation of electoral rolls for, and the conduct of, all elections to the Panchayats shall be vested in a State Election Commission consisting of a State Election Commissioner to be appointed by the Governor.

(2) Subject to the provisions of any law made by the Legislature of a State, the conditions of service and tenure of office of the State Election Commissioner shall be such as the Governor may by rule determine ;

Provided that the State Election Commissioner shall not be removed from his office except in like manner and on the like grounds as a Judge of a High Court and the conditions of service of the State Election Commissioner shall not be varied to his disadvantage after his appointment.

(3) The Governor of a State shall, when so requested by the State Election Commission, make available to the State Election Commission such staff as may be necessary for the discharge of the functions conferred on the State Election Commission by clause (1).

(4) Subject to the provisions of this Constitution, the Legislature of a State may, by law, make provision with respect to all matters relating to, or in connection with, elections to the Panchayats.

243-L. Application to Union territories.—The provisions of this Part shall apply to the Union territories and shall, in their application to a Union territory, have effect as if the references to the Governor of a State were references to the Administrator of the Union territory appointed under Article 239 and references to the Legislature or the Legislative Assembly of a State were references, in relation to a Union territory having a Legislative Assembly, to that Legislative Assembly :

Provided that the President may, by public notification, direct that the provisions of this Part shall apply to any Union Territory or part thereof subject to such exceptions and modifications as he may specify in the notification.

243-M. Part not to apply to certain areas.—(1) Nothing in this Part shall apply to the Scheduled Areas referred to in clause (1), and the tribal areas referred to in clause (2), of Article 244.

(2) Nothing in this Part shall apply to—

(*a*) the States of Nagaland, Meghalaya and Mizoram ;

(*b*) the Hill Area in the State of Manipur for which District Council exist under any law for the time being in force.

(3) Nothing in this Part—

(*a*) relating to Panchayats at the district level shall apply to the hill areas of the District of Darjeeling in the State of West Bengal for which Darjeeling Gorkha Hill Council exists under any law for the time being in force ;

(*b*) shall be construed to affect the functions and powers of the Darjeeling Gorkha Hill Council constituted under such law.

(4) Notwithstanding anything in this Constitution,—

(*a*) the Legislature of a State referred to in sub-clause (*a*) of clause (2) may, by law, extend this Part to that State, except the areas, if any, referred to in clause (1), if the Legislative Assembly of that State passes a resolution to that effect by a majority of the total membership of that House and by a majority of not less than two-thirds of the members of that House present and voting ;

(*b*) Parliament may, by law, extend the provisions of this Part to the Scheduled Areas and the tribal areas referred to in clause (1) subject to such exceptions and modifications as may be specified in such law, and no such law shall be deemed to be an amendment of this Constitution for the purposes of Article 368.

243-N. Continuance of existing laws and Panchayats.—Notwithstanding anything in this Part, any provision of any law relating to Panchayats in force in a State immediately before the commencement of the Constitution (Seventy-second Amendment) Act, 1992, which is inconsistent with the provisions of this Part, shall continue to be in force until amended or repealed by a competent Legislature or other competent authority or until the expiration of one year from such commencement, whichever is earlier.:

Provided that all the Panchayats existing immediately before such commencement shall continue till the expiration of their duration, unless sooner dissolved by a resolution passed to that effect by the Legislative Assembly of that State or, in the case of a State having a Legislative Council, by each House of the Legislature of that State.

243-O. Bar to interference by courts in electoral matters.—Notwithstanding anything in this Constitution,—

(*a*) the validity of any law relating to the delimitation of constituencies or the allotment of seats to such constituencies, made or purporting to be made under Article 243-K, shall not be called in question in any

(*b*) no election to any Panchayat shall be called in question except by an election petition presented to such authority and in such manner as is provided for by or under any law made by the Legislature of a State.'.

3. Amendment of Article 280.—In clause (3) of Article 280 of the Constitution, after sub-clause (*b*), the following sub-clause shall be *inserted*, namely :—

"(*bb*) the measures needed to augment the Consolidated Fund of a State to supplement the resources of the Panchayats in the State on the basis of the recommendations made by the Finance Commission of the State.;".

4. Addition of Eleventh Schedule.—After the Tenth Schedule to the Constitution, the following Schedule shall be *added*, namely :—

"ELEVENTH SCHEDULE

(Article 243-G)

1. Agriculture, including agricultural extension.
2. Land improvement, implementation of land reforms, land consolidation and soil conservation.
3. Minor irrigation, water management and watershed development.
4. Animal husbandry, dairying and poultry.
5. Fisheries.
6. Social forestry and farm forestry.
7. Minor forest produce.
8. Small scale industries, including food processing industries.
9. Khadi, village and cottage industries.
10. Rural housing.
11. Drinking water.
12. Fuel and fodder.
13. Roads, culverts, bridges, ferries, waterways and other means of communication.
14. Rural electrification, including distribution of electricity.
15. Non-conventional energy sources.
16. Poverty alleviation programme.
17. Education, including primary and secondary schools.
18. Technical training and vocational education.
19. Adult and non-formal education.
20. Libraries.
21. Cultural activities.
22. Markets and fairs.
23. Health and sanitation, including hospitals, primary health centres and dispensaries.
24. Family welfare.
25. Women and child development.
26. Social welfare, including welfare of the handicapped and mentally retarded.
27. Welfare of the weaker sections, and in particular, of the Scheduled Castes and the Scheduled Tribes.

P S S Thomas

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Peter Greiner

Mr. Greiner was Secretary of Energy at the Ministry of Mines and Energy of Brazil from March 1994 to Mach 1999, having conceived and led the implementation of the Brazilian Electric Sector restructuring. He has worked in the electrical sector since 1965, first at the Usinas Electricas do Paranapanema (USELPA), which was merged into Companhia Energetica de Sao Paulo (CESP). For eight years, he worked as Superintendent and Adjoint Director at Eletricidade de Sao Paulo (ELETROPAULO). At these utilities, he directed many different areas such as: construction of hydro power plants, contaract administration, budgeting and scheduling of projects, tariffs, market projections, corporate planning, and technical advising. Mr. Greiner has the degrees of civil engineer from the Politecnica of Sao Paulo (1963), and Master (1986) and Ph.D. (1995) of Business Administration from the Getulio Vargas Foundation of Sao Paulo.

EL PASO ENERGY INTERNATIONAL

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Contemporary Issues in Power Development in the Emerging Markets

World Bank Conference
Bangalore, India
May 15-17, 2000

Cautionary Statement Regarding Forward-looking Statements

This presentation includes forward-looking statements and projections, made in reliance on the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. El Paso Energy has made every reasonable effort to ensure that the information and assumptions on which these statements and projections are based are current, reasonable, and complete. However, a variety of factors could cause actual results to differ materially from the projections, anticipated results or other expectations expressed in this presentation, including, without limitation, oil and gas prices; general economic and weather conditions in geographic regions or markets served by El Paso Energy and El Paso Energy affiliates, or where operations of the company or its affiliates are located; inability to realize anticipated synergies and cost savings on a timely basis; difficulty in integration of operations; and competition. While the company makes these statements and projections in good faith, neither El Paso Energy nor its management can guarantee that the anticipated future results will be achieved. Reference should be made to El Paso's Securities and Exchange Commission filings for additional important factors that may affect actual results.

El Paso Energy

- Largest natural gas based energy company in the world—$35 billion enterprise value
- Origins of El Paso Energy (Mergers & Acquisitions)
- Pipe and power convergence
- Post-regulatory environment (Market driven)
- Infrastructure focus
- Doing business in 19 countries on 5 continents



Infrastructure "Credentials"

- More than 65,000 miles of natural gas pipeline
- More than 17,000 MW of electric generation
- Oil and gas production
- Gas gathering and processing
- Broadband and wireless telecommunications



Merchant Energy Transition Issues

Some issues associated with the need simultaneously to develop power infrastructure and transition to merchant conditions in the emerging markets

What is the "appropriate" return in an environment moving from sovereign-supported PPA to sub-sovereign PPA to merchant risk?



History

The assumptions over the last 10 years have been shocked, modified, and new "truths" have emerged:

1990 ↓ 2000

- Power infrastructure as government responsibility (either outright ownership or regulated monopoly—occasionally with self-generation by some larger users) has been challenged as an assumption
- Technical advances in fuel efficiencies; global demand for environmental improvement; global warming
- Philosophical push to deregulate developed markets and induce developing markets to move toward privatization
- U.S. and E.U. energy companies (perceiving home market expansion to be physically and economically difficult) sought to grow, enhance returns by entering developing markets
- Asian and Latin "shocks" raised sovereign risk issues, demonstrated that many energy companies are ill-equipped to do business outside the developed world
- Evolution of project and multi-lateral finance made likelihood of high, non-recourse leverage more difficult
- Convergence and concentration of energy globally
- Growing recognition that competitive marketing is possible (virtual energy systems, derivative products, unbundling of services) despite the physical monopoly constraints of generation, transmission, and distribution assets



1999—2000 "Big Bang"

- Sea change in market conditions (U.S. first, E.U. quickly second): opportunities "at home" to acquire divested assets, compete in new markets introduced competition for capital funding and promised higher "real" rates of return
- Many major energy companies announced plans to exit infrastructure market (numerous secondary offerings)

Why?

- Profitability experience was not good
- Home markets (being deregulated) offered opportunities for
  - Acquisition of capacity in competitive markets
  - Technology advances (particularly the growth of natural gas as a fuel) provided competitive edge in established markets
- Commoditization of electricity/gas and maturation of trading environment required size and intellectual capital
- Public sovereign risk perception evolved and was perceived to be much higher in the emerging markets (perhaps the "sovereign risk" was really a badly calculated commercial risk)
- Premium on growth vs. value changed (particularly in the utility industry where the traditional assumptions of dividend yield security and stability and regulatory predictability were challenged)



Results

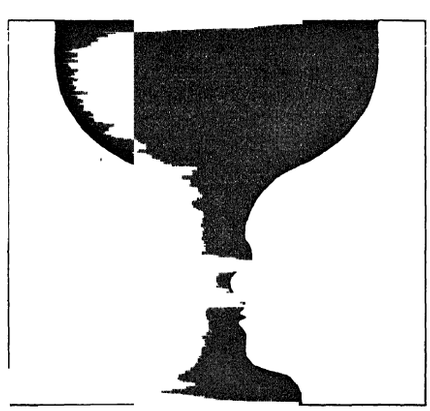
- Significant reduction in private participants in energy infrastructure outside the highly developed markets
- Possible opening for second-tier players (Asian, South European, larger Latin companies)
- Redirection of business plan of those who remain—and the features of this new plan are
  - Regional, integrated businesses
  - Expectation of future merchant conditions in targeted markets
  - Premiums on rule of law, democratization, and transparency
  - Investments are analyzed for long-term competitiveness
  - Willingness to expose equity (well-capitalized developers)
- Role for long term investment managers (infrastructure funds, insurance companies and pension funds) as co-investors
- Premium on top ranked, well-capitalized, co-owner-operators



Perceptions of Return and Risk

- Sovereign risk, associated with the PPA, return and transition to merchant are related concepts
- Sovereigns, policy makers, and private companies have different perceptions of return

The Power Purchase Agreement (PPA)—Merchant Dilemma



Perceptions

- Developer: Sovereign guaranty of long term PPA
  High return—low risk
- Government:
  Developer at risk, consistent with high return

Credit for Sovereign Risk?

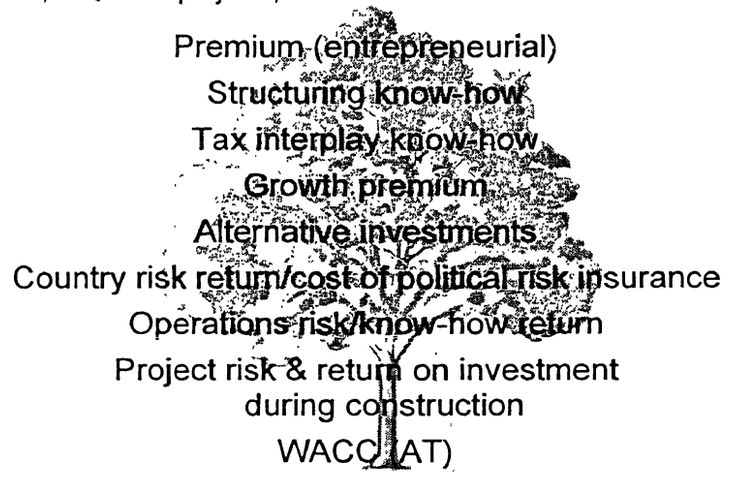
- Emerging market leaders (and their advisors) are asking whether the risk-return analysis being done by developers gives sufficient "credit" to the host sovereign in setting the energy rate—is the sovereign providing credit support but not getting sufficient credit?

Possible reasons why not:

- General developing country sovereign risk doubts
- Experience with disregard of contractual commitments
- Irrational return analyses
- Experience with difficulties of political risk insurance (particularly highly leveraged projects and quasi-credit risk coverages)
- Sovereigns rarely give much credit for intellectual capital and entrepreneurial value which also must receive a return
- Many emerging market currencies are un-hedgeable and thus the risk cannot be reliably evaluated and controlled

The Private Return Tree

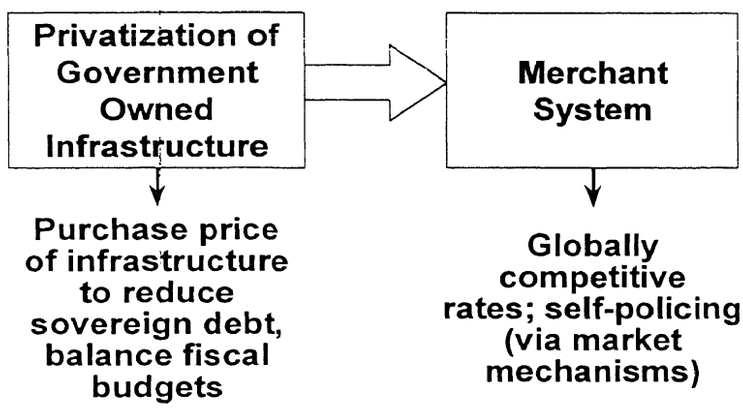
Which elements of the "return tree" are involved in PPA supported projects, merchant projects, or both?



PPA Renegotiation Risk/Stranded Costs

- Experience shows that most long term PPAs are renegotiated
- Negotiation generally results in equity return impairment
- Who should bear these "stranded costs?"
  (In almost no case in the developed world did/does private enterprise bear any substantial part of stranded costs in the power market).

Goal



Is the PPA a logical mid-step?

Conditions Desired by Private Owner-Operator to Take Merchant Risk

- Market liquidity (market size)
- Transparent, predictable, regulatory framework—including non-discriminatory dispatch
- Ability to project market demand within reasonable ± parameters
- High degree of confidence that availability/capacity payments and dispatch expectations will result in a return commensurate with risk
- Recognition of all systemic costs in ordering the dispatch queue (foreign exchange, environmental, reliability)



Conditions Desired by Government (as Representative of the Public Interest) to Accept Merchant System and Returns

- Sufficient capacity and reliability of supply
- Sufficient competition/structure to keep profits in a reasonable range without extensive need to regulate
- Conditions conducive to new investment, modernization



Conditions: Summary

- These conditions may be compatible. The PPA is a useful tool for creating these conditions over at least a 5-year horizon
- In a power short emerging market, merchant conditions can rarely be achieved with a big bang; rather an intellectually "impure" diversity (some public ownership, some public supported PPAs, some merchant) must be expected for at least 5 years
- The goal of government under these circumstances:
  - Avert shortages; keep development going
  - Commit to gradual merchantization
  - Attempt to minimize its ultimate responsibility for stranded costs



Bridge from PPA to Merchant–Possible Techniques

- Short term PPA with right to extend or "put" asset if merchant market does not exist at end of primary term (issues: definition of merchant market)
- Create competition through vertical or horizontal divisions of government-owned companies (to be privatized) prior to privatization
  (issues: regulation of post-privatization activity; horizontal divisions tend to permit efficiency achievement, but don't per se create a merchant environment)
- Deregulation with various techniques to recompense stranded costs over time (including over-market PPAs)



Consequences: Observable Results

- Argentina
  - Oversupply conditions
  - Miscalculations of acquisition prices (misreading future price)
  - Lower short-term costs for consumers (particularly industrials)
  - Abandonment of market by some players and re-concentration



Consequences: Observable Results

- Brazil
  - Undersupply conditions (particularly in areas highly dependent on hydro)
  - Mixed system—some horizontal/vertical divisions and privatizations; some PPAs with quasi-sovereign guaranty
  - Movement to capacity payment solution as "base rate of return"



Consequences: Observable Results

- Australia
  - Oversupply conditions
  - Miscalculation of acquisition prices
  - Public/private competition (uneven playing field?)
  - Re-regulatory threat; sovereign risk
  - Abandonment of market



Consequences: Observable Results

- United Kingdom/European Union/ United States
  - Existing competitive forces (many potential players)
  - Relatively high prices
  - Regulatory "compact" and recovery of stranded costs
  - Robust merchant market
  - Capacity issues: threat of re-regulation to ensure security of supply/cap prices



Conclusions

- PPA is and will be a useful tool in emerging markets for 5 years
- Phaseout possible where there is a reasonable expectation of merchant conditions
- Merchant conditions are less likely in "power short" locations
- No perfect solution: iterative process; no intellectual purity in visualizing systems; be prepared for a complex, ad hoc picture

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POLICY AND REFORM INITIATIVES:REGULATORY EXPERIENCE

S.L. RAO

OF ELECTRICITY GENERATING CAPACITY

30.4% with central government

61.1% with state governments

8.5% with private sector

OF ELECTRICITY GENERATED

Coal used for fuel for 62.1%

Hydro for 24.1%

Rest is gas, oil and nuclear

BETWEEN	1993-94 (Percentage)	1997-98 (Percentage)
Domestic consumption	18.17	20.54
Industry	39.6	35.50
Agriculture	29.7	30.5
Commercial enterprises	5.9	6.5

COST RECOVERY

Gap 1992-93 -- 17.8%
1998-99 -- 21.2%

AVERAGE TARIFFS IN 1998 - 99

		PAISE
Agriculture	-	29.7
Domestic consumers	-	131.1
Industry	-	297.5
Commercial establishment	-	345.3
Railways	-	398.9

T&D LOSSES

National average	-	22%
Delhi	-	about 50%
Karnataka	-	19%
Andhra Pradesh	-	over 33%

POST REGULATORY COMMISSIONS

Karnataka	-	40%

QUALITY

FREQUENCY 1999 - 2000

South India - 47.8 Hz

East India - 53.5 Hz

VOLTAGE IN 400 kV SYSTEM

For example in East India
280 kV TO 435 kV

REGULATORY COMMISSIONS

CERC

North India -- Haryana, Rajasthan, UP and Delhi

East India -- West Bengal and Orissa

West India -- Maharashtra, Madhya Pradesh and Gujarat

South India -- Karnataka, Andhra Pradesh and Tamil Nadu

Central commission regulates generation and transmission tariffs up to the boundaries of any of the states.

Of central government owned generating Stations

Inter-state sale in composite package and inter-state transmission

Licenses -- private investment in transmission

Regulates inter-state transmission

SOME ISSUES

Delays in office space, staff, financial powers, etc.

Delays in states in handing over tariff setting responsibilities

Continuing determination of tariffs

Full membership not appointed in some

Most members and chairmen are from government

CERC - SERC's

No statutory relationship between the two

Forum of Indian regulators has informal Association

FOR EXAMPLE,

Differing policies to captive generation in different states

Structure of availability based tariff only by CERC

Need for electricity grid codes in states to mesh with national code

IS THERE REGULATORY UNCERTAINTY?

SERCs are putting tough performance benchmarks and limiting tariff increases

All Commissions are evolving tariff principles

This process involves consultation and time

Before finalisation, provisional tariffs are being approved

ARE REGULATORY COMMISSIONS TOO JUDICIAL AND LEGALISTIC?

All Orders subject to appeal by higher courts

Essential to follow "due process"

Possibility that Commissions could distinguish between regulatory and adjudicatory jurisdictions

REFORM INITIATIVES

- Opening out generation to private investment
- Subsequently transmission and distribution were also opened to private investment
- creation of central and state Regulatory Commissions
- Privatization of distribution
- Mega power projects.

PRIVATE INVESTMENT

Inter-state transmission subject to Powergrid

Intra-state -- no policy yet.

Powergrid and telecom investments.

Avoid impression of cherry picking.

Separate distribution from supply.

NEED FOR TRAINING AND RESEARCH

Electricity neglected by the social sciences

Regulatory staff primarily from SEBs, CEA and govt.

SEB's poorly represented

Training for regulated entities also essential.

COMPETITION AND TRADING

Competition requires regulation of:

tariffs and of entry

each trading transaction today requires state permission

IMMEDIATE TASKS FOR REGULATORS

- the improvement of discipline in the Grid and hence the quality of power;

- introduction of performance based regulation in the determination of tariffs;

- stimulation of trading so as to match local surpluses with demands over the system;

- promotion of investment in the sector

in the states,

- the regulators have to improve technical and commercial efficiencies in transmission and distribution.

- Make cost and ROR based tariffs completely transparent

- Separate distribution from supply and open the latter to new entrants.

NEXT 3 YEARS

- regulators will be regulating mostly government owned entities;

- tariff regulation will be in detail, but there will be a consistent approach to tariffs over the country;

- we will be able to differentiate between tariffs at peak times and off-peak times;

- there will be significant improvements in electricity quality;

- that private investment in transmission will have been initiated;

- distribution companies at the state level will improve their revenue collections and hence show an improved ability to pay their bills;

- transmission constraints will be reduced;

- power flows across the system will improve;

- trading would have started in a limited way across the country; and

- at least large customers will benefit from competing suppliers.

NEXT TEN YEARS

- regulators should be aiming to move out of detailed determination of generation tariffs into regulating markets and trading.

- Regulators should be also regulating entry and exit of generators, and into transmission and supply.

- Regulatory Commissions would be increasingly involved in considering alternative fuel sources,

- encourage the use of renewable resources and

- begin to take decisions on issues relating to convergence.

EXPANDED ROLE

From stimulating competition to regulating markets

From electricity to energy

More private investors

Diminished role of government owned entities

Electricity jurisprudence stabilises

POWER SECTOR REFORM AND PRIVATIZATION

BANGALORE, MAY 15-17TH, 2000

REFORM OF THE POWER SECTOR IN CHILE

ALEJANDRO JADRESIC
Former Minister of Energy

1. THE POWER SECTOR IN THE 70s:
The monopoly of the State



2. SECTOR REFORM IN THE 80s

- Creation of the National Energy Commission (1978)
- The electricity law (1982)
- Restructuration of state owned companies
- Privatization of Endesa and Chilectra (1985-90)

3. THE REGULATORY FRAMEWORK

- Free entry to generation
- Non exclusive distribution concessions
- Load dispatch coordination
- Open access to transmission lines
- Free prices for large customers ($\geq$ 2 MW)
- Regulated prices for small customers:
  - generation: node prices
  - distribution: DVA

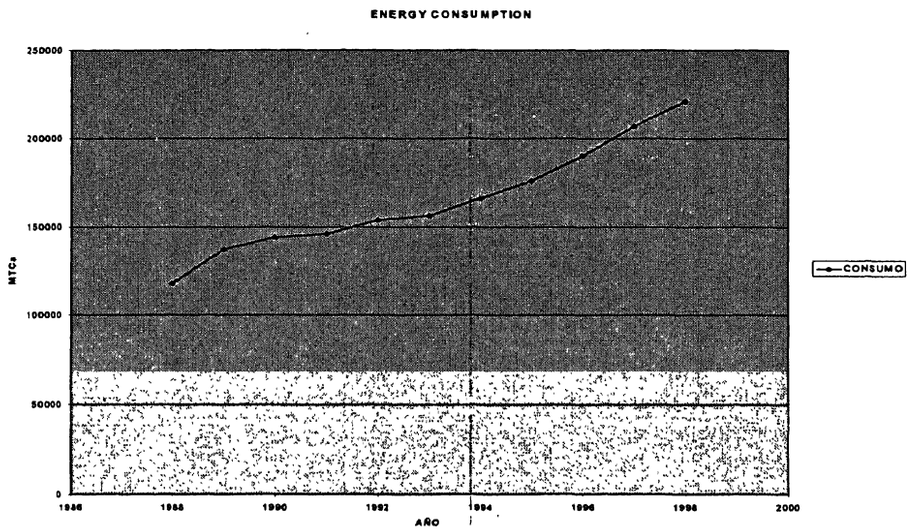
4. INITIAL APPRAISAL

- High level of private investment
- Greater efficiency
- Lack of competition (high concentration)
- Low coverage in rural areas

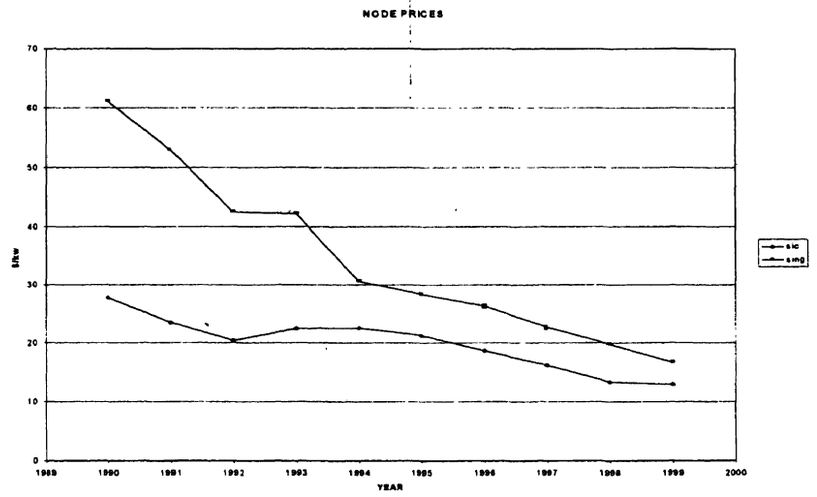
5. SECTOR REFORM IN THE 90s

- Objectives: stronger competition - access to the poor
- Access to natural gas & water rights
- Constraints to vertical integration
- Further privatization: new entrants
- Stronger regulatory institutions
- Rural electrification program

6. PERFORMANCE: *RAPID GROWTH*

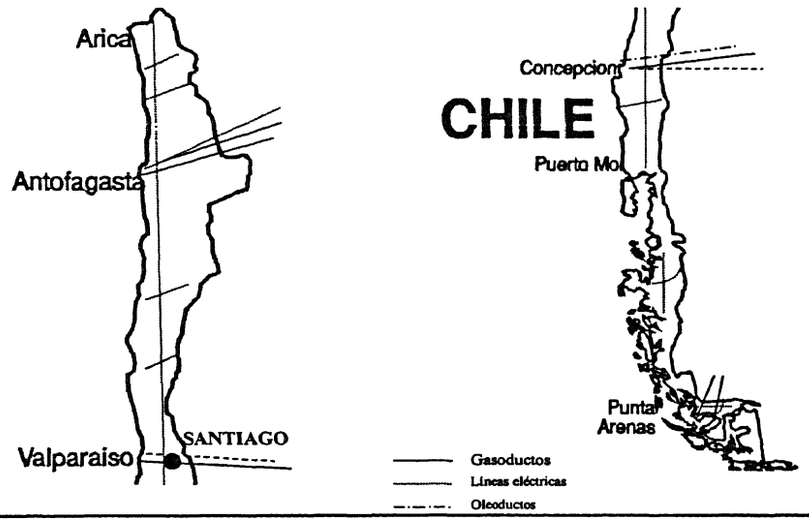


7. PERFORMANCE: *STRONG COMPETITION*



8. PERFORMANCE: *REGIONAL INTEGRATION*

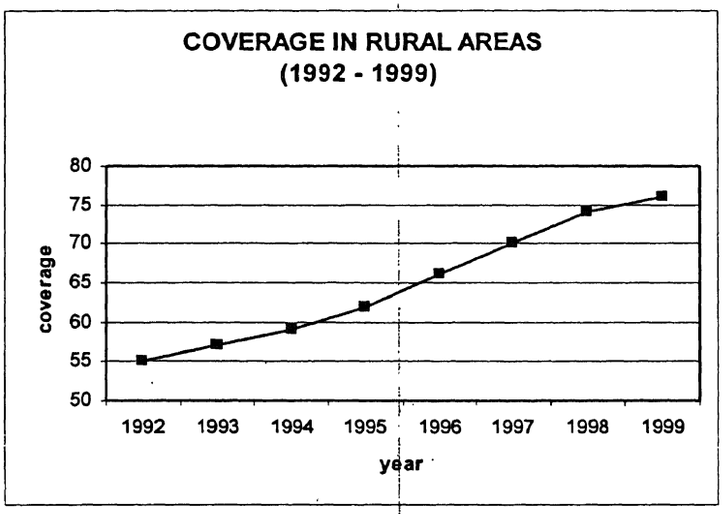
THE ENERGY SYSTEM: 2000



9. PERFORMANCE: *GLOBALIZATION*

- **chilean multinationals:**
  - **Endesa, Enersis/Chilectra, Gener, Chilquinta, Emel, Emec, CGE/Conafe, Saesa/Frontel**
- **foreign investment in Chile:**
  - **Southern Electric, Endesa España, Tractebel, Iberdrola, Sempra, PP&L, CMS, Duke Energy**

10. PERFORMANCE: *GREATER COVERAGE*



11. SECTOR REFORM IN THE 2000s

- **Retail competition - marketers**
- **Open access to distribution grid**
- **Pool price competition**
- **international interconection**

12. CONCLUSIONS

- **Market reform has worked**
- **Key issues:**
  - **market structure**
  - **sound regulations**
  - **capable institutions**

SESSION 3
PRIVATE SECTOR PARTICIPATION IN TRANSMISSION

MR. R. P. SINGH

CHAIRMAN & MANAGING DIRECTOR

POWER GRID CORPORATION OF INDIA LIMITED

Mr. R. P. Singh is Chairman & Managing Director of Power Grid Corporation of India Limited, a public sector company involved in the business of electric power transmission in India, which was incorporated in 1989 with an authorised share capital of Rs.5,000 Crores. During the year 1999-2000 POWERGRID had an annual turnover of over Rs.2,120 Crores (provisional) and profit of Rs.610 Crores (provisional).

Mr. Singh, with a career spanning over 28 years has gained rich and multi faceted experience in working with leading enterprises; Tata Iron & Steel Company, National Thermal Power Corporation and POWERGRID. He has varied experience in the fields of Project Execution, Engineering, Contracts, Corporate Planning and Human Resource Development & Management. He has also earned reputation as a teacher, practitioner and consultant in strategic and professional management.

In recognition of his rich experience and expertise, Government of India appointed him as Chairman/Member of Committees constituted to finalise bidding documents with the World Bank. Further, World Bank has also honoured him by appointing him as Consultant.

His academic pursuit and interest in manifested in his association with premier engineering institutions like Indian Institute of Technology, Roorkee University and giving active support to these institutions in specific projects aimed at applied technological developments. He is a keen participant and sought after speaker in conferences and seminars.

Carlos Ocaña

Mr. Ocaña is a Principal Administrator at the OECD's International Energy Agency. He holds a Ph. D. in Managerial Economics from Northwestern University. Before joining the IEA, he was Deputy Director at the Spanish Electricity Regulatory Commission, Deputy General Director at the Spanish Antitrust Authority, Associate Professor of Economics at Universidad Carlos III of Madrid (tenured), Fulbright Fellow and lecturer at the J.L. Kellogg Graduate School of Business. He is the author of several journal articles and monographs and two books.

Regulating Transmission in Competitive Electricity Markets

Carlos Ocaña
IEA/OECD



How to regulate transmission in a competitive electricity market?

- **Role of Transmission**
- **Objectives of Regulation**
- **Tools of Regulation**
- **International Experience**
- **Conclusions**
  - **Unbundling**
  - **Operation**
  - **Investment**



Role of Transmission (I)

- Co-ordination: Higher reliability at a lower cost through
  - Pooling of diverse, uncertain loads
  - Pooling of generating units
  - Etc.
- Effective co-ordination requires:
  - Long-term: Adequate Investment
  - Short-term: effective system Operation



Role of Transmission (II)

- Facilitating Competition: provides physical link needed for choice
- Competition requires:
  - Short-term: non-discriminatory access and cost reflective pricing
  - Long-term: adequate investment



Objectives of Regulation

Ensure that transmission is effective in

- co-ordinating electricity supply
  - Investment
  - System Operation
- facilitating competition
  - Investment
  - Network Access
  - Pricing

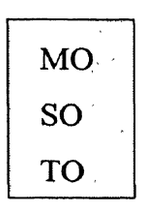


Why Regulation?

- **Some transmission activities are a monopoly:**
  - Pricing
  - Incentives for cost minimisation
- **Transmission is sometimes vertically integrated with generation:**
  - **Discriminatory Access and "self-dealing"**
  - **Discriminatory Pricing**



Unbundling of MO, SO and TO



Mandatory Pool

Old UK, Australia



Voluntary Pool and transmission company

Nordic countries, Spain, New UK



Voluntary Pool and Independent SO or ISO

Calif., other US, Italy

Price & Revenue Controls

Cost of Service

Finland
Sweden
US

Incentive Regulation

Australia
New Zealand
Norway
Spain
UK

Investment Regime: Examples

California ISO

- Any party can invest
- Transmission prices reflect congestion
- ISO bears residual responsibility for investment

Fingrid

- Transmission Company is responsible for grid augmentation
- and bears the cost of congestion

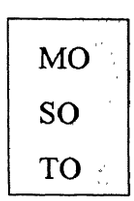


Conclusions

- Unbundling facilitates competition
- Thus, reduce to a minimum the scope of monopolistic activities

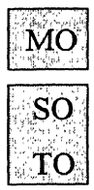


Unbundling of MO, SO and TO



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Conclusions

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Conclusions

- Incentive Regulation can improve efficiency in transmission
- Thus, indirectly, also facilitates competition (e.g. through lower prices)



Conclusions

Facilitate Investment:

- Allow investment by third parties (e.g. through ISOs or Transmission Companies)
- Ensure that those who bear the cost of congestion can invest freely

- But transmission not a "normal" market
- Thus, Monitor Grid Development
- Assign residual responsibility for investment



SESSION 4
PRIVATE SECTOR PARTICIPATION IN DISTRIBUTION

Michael Webb

Mr. Webb is a Director of Frontier Economics, leading the firm's practice in emerging markets and transition economies. He has directed over 30 major projects, from energy pricing in the FSU to the introduction of water competition in the UK. His 30 years' experience in the economics of utilities includes World Bank and an extensive academic career as well as the creation of an international practice at London Economics. Earlier he held academic posts at the Universities of Leicester, York and Oxford. He is the author of four books and over 35 articles in the refereed economic journals.



frontier economics

A member of the Frontier Economics Group

Private Sector Participation in Distribution

Michael G Webb

Bangalore, 15th May 2000

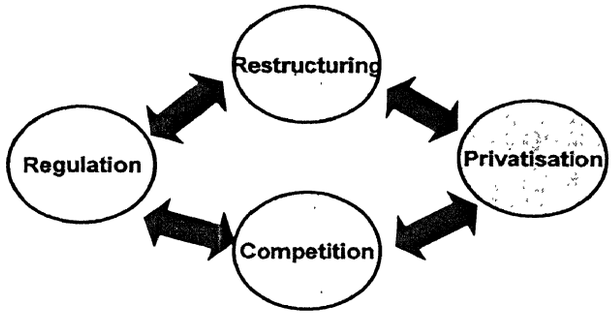
Frontier Economics
150 Holborn
London, EC1N 2NS

Key to successful power sector reform

- Common set of issues faced by power utilities around the world, although they differ in degree:
  - inadequate financial performance
  - poor commercial performance
  - technical inefficiencies
  - governance and political interference
- Privatisation, with increased competition, is of key importance to making power sectors creditworthy and improving efficiency

Reform process

- Reform is a package and the sequence is important.



- ***First***, there must be a clear set of objectives
- Choice of industry structure is a pre-requisite for PSP.
- Regulation will be important - structural regulation by promoting competition is preferable to conduct regulation.

Options for private sector participation

- Wide range of options for PSP, from management contracts through concessions to asset sales
- Need to choose the option which meets the government's objectives for reform, and hence which is politically (and socially) acceptable
- There is wide international experience with the different forms of PSP in the power sector

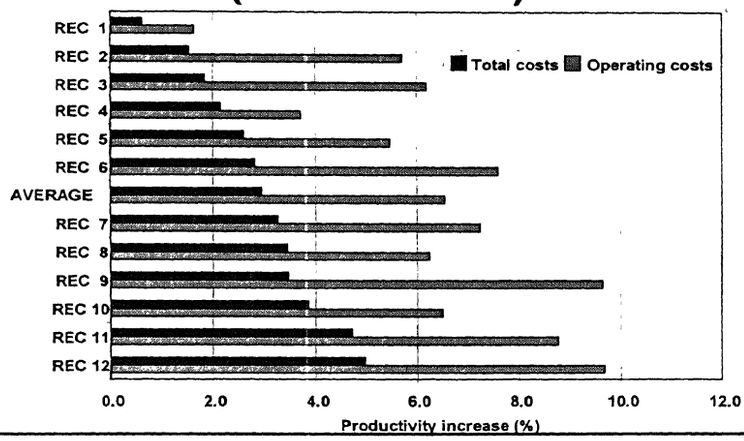
Global trend

Country	*Number of Sales*	*Form PSP*	*Dates*	*Total Customers*	*Purchase cost per customer (US$)*
Argentina	18	Long term concessions	Sep 92 - Jun 98	6,416,000	438
Bolivia	2	Long term concessions	Aug 95 - Dec 95	397,000	292
Brazil	17	Asset sale	Jul 95 - Sep 98	26,871,000	675
Colombia	3	Asset sale	May 97 - Aug 98	2,890,000	675
Peru	9	Asset sale	Jul 94 - Nov 98	2,066,000	292
El Salvador	3	Asset sale	Jan 98	883,000	664
Guatemala	2	Asset sale	Jul 98 - Jan 99	1,114,000	557
Panama	2	Asset sale	Sep 98	454,000	665
India	4	Asset sale	Apr 99 - Sep 99	1,320,000	28
Hungary	6	Asset sale	Dec 95	4,965,000	222
Georgia	1	Asset sale	Nov 98	370,000	70
Victoria (Aus)	5	Asset sale	Aug95 - Nov 95	1,990,000	3,144

Privatisation is feasible and works

- International experience, from the Americas, Europe, FSU, Asia and Australia, is that privatisation of distribution is both feasible and works
- Privatised distribution companies operate under a different set of incentives. These include to:
  - bill and collect revenues - Argentina
  - improve efficiency - England and Wales, Victoria
  - increase connections - Panama
  - improve governance - Orissa

Productivity improvements for Regional Electricity Companies (1991 - 1996)

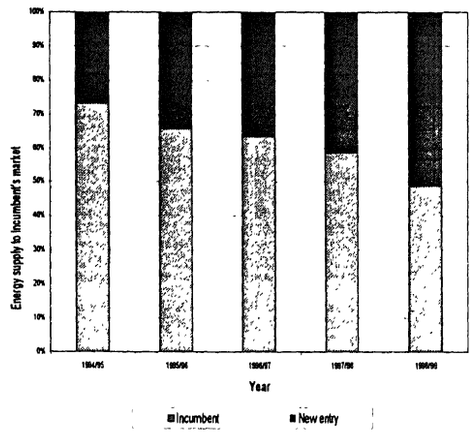


Retail competition

- Wide recognition of the importance of competition in promoting efficiency and minimising costs in power sectors
- Further, there is substantial evidence on the benefit of allowing customers of different sizes to progressively choose their suppliers. This puts great pressure on the distribution companies to minimise their costs
- Retail competition lies at the heart of the EU Electricity Directive and was central to the reforms in UK, Norway, California, Victoria, Argentina and elsewhere
- A minimal form of this is allowing captive generation

Impact of competition

- Retail competition is a key part of the reform of the electricity industry in England and Wales
- Large consumers (over 1 MW) could choose their supplier on privatisation in 1990. They accounted for 1/3 of electricity demand
- Steady increase in market penetration following introduction of supply competition to 100 kW+ market in 1994 (in E&W)



Source Ofgem 1999, approximate figures, excluding "Other sources of supply"

Industry structure and regulation (1)

- Some key lessons have been learned regarding industry structure and regulation for successful PSP in distribution. These include:
  - the distribution companies should be not be too small - economies of scale depend heavily on local circumstances and it is not the case that they are exhausted at around 300,000 customers in all countries
  - investor control is important - for example over existing employees and power purchase costs
  - attracting the best qualified private investors and maximising prices paid for assets requires that regulatory uncertainty is minimised

Industry structure and regulation (2)

- structural regulation through enhancing competition, particularly allowing large consumers to choose their suppliers, is important
- allowing captive generation is an example of such structural regulation - it puts a limit on the price which can be charged to industrial consumers
- consideration should be given to drawing concession/ license boundaries tightly, allowing competition outside the boundaries for new rural consumers (as in Panama)

Minimising Regulatory Risk

- Important to distinguish between decreasing uncertainty over tariffs and actual level at which tariffs are set.
- Private companies target specific rate of return (or an acceptable band). Consequently, **depending on the expected tariff level they will adjust the price they bid for the contract (or equity) accordingly**.
- Therefore, **it is primarily the degree of certainty rather than absolute level of tariffs which is important**. High uncertainty will dissuade reputable companies from bidding.

Concluding remarks

- There is substantial international experience in the privatisation of distribution. It is a feasible option and it works
- Successful privatisation requires that uncertainty - over tariff paths, data, competition and planned future changes to the structure of the industry and regulatory system - is minimised
- Retail competition is important, and works for large and medium size consumers
- But the speed and extent of liberalisation need to be traded off against their financial impacts on the industry

Dhirendra Kumar Roy

Mr. D. K. Roy is a member of Orissa Electricity Regulatory Commission since its inception on 1st August 1996. He has done pioneering work in framing its rules, regulations and procedure and in operationalising the first ever Electricity Regulatory Commission in India.

During his years in Indian Revenue Service he dealt with financial analysis, legal scrutiny and judicial decision of major corporate entities. He has been Director Financial Planning in Ministry of Defence and has been an Economic Counsellor in Indian Embassy at Moscow, USSR.

Mr. Roy has undertaken study tour of Federal Energy Regulatory Commission and also Public Utilities Commission of five states in U.S.A. On invitation from Asian Development Bank he participated as a speaker in a seminar at Geneva on Governance Dimensions of Regulatory Frameworks for Private Sector Infrastructure Development. He has published papers on regulation and has participated in a number of seminars on infrastructure regulation.

Martin Augusto Rodriguez Pardina

Mr. Rodriguez Pardina is currently the Executive Director of the Economic Regulation Research Center at the Universidad Argentina de la Empresa and a consultant specializing in the areas of privatization and regulation. Previously, he held the position of Senior Economist in the Electric Markets Division of the Ente Nacional Regulador de la Electricidad (National Electricity Regulation Agency) in Argentina and also worked in the Economic Research Institute of the Confederacion General Economica. As a consultant, he has worked on the privatization of Bolivia's gas distribution network, and has performed forecasts of demand, tariff reviews, and formulated privatization strategies. He is the author of numerous articles and books written for the National Electricity Regulation Agency of Argentina and for The World Bank (including *Resetting Price Controls for Privatized Utilities: A Manual for Regulators*). Mr. Rodriguez Pardina received a Master's degree from the University of Cambridge in the Economics and Politics of Development, where he also received his doctorate in Economics in 1998.

Electricity Distribution Concessions: Argentina´s Experience

Martín RODRIGUEZ PARDINA

Topics

- Restructuring process
- Privatisation process
- Regulation
- Results
- Conclusions

The Argentine Experience

- Decision to Privatise and Deregulate the Economy
  - Search for a "market" model (minimize regulation)
  - Vertical Disintegration
- Competition in Generation
  - Atomisation of business
  - Central dispatch with a merit order
  - Free entry of new participants

Law 24065
Policy Objectives

- to protect user's rights
- to promote competition in production and encourage investments which will guarantee long term supply
- to promote free access, no discrimination, and generalized use of transport and distribution services
- to regulate transport and distribution activities ensuring just and reasonable tariffs
- to give incentives for efficiency in demand and supply through appropriate tariffs
- to encourage private investments while assuring competitiveness in all markets

Restructuring

- Physical system remains unchanged.
- Changes in the Institutional Framework
  - » Unbundling of activities
    - » Generation
    - » Transmission
    - » Distribution
    - » Supply?
  - » New institutions
    - » Regulator (ENRE)
    - » Manager (CAMMESA)

Actors in the Electricity Sector

- **Generation:**
  - » Competition. Free Entry. Prices are not regulated. Declared as *General Interest*
- **Transport and Distribution**
  - » Natural Monopolies. Concessions. Regulated Prices. Third Party Access. No discrimination. Declared *Public Services*
- **Large Users**
  - » Freedom to Contract. Members of the Wholesale Market. Their supply is competitive.
- **CAMMESA**
  - » Non Profit Organization. In charge of the administration of the Wholesale Market. Economic Dispatch. Hourly prices.
  - » Members:
    - **State** **with veto powers**
    - Generating Companies
    - Distribution Companies
    - Transport Companies
    - Large Users

Privatisation Mechanism

- Long Term Concessions (95 years)
- Management periods (10 years)
- Control package sold
- Two stages bidding process
  - prequalification
    - » Technical operator
    - » Financial requirements
  - Economic offer
    - » among all pre-qualified bidders with no distinction
- Concession contract approved by Decree

Distribution

(Federal Companies Only)

- 3 Business units

Firm	Costumers	Km2	Annual Revenue 1992 (U$ M)
– Edenor	1.920.000	4.637	588
– Edesur	1.865.000	3.300	636
– Edelap	240.000		

- Bidding

	Edenor	Edesur	Edelap
– Concession			
– Bidding Documents Sold	7	7	5
– Offers	5	4	4
– Winner´s offer (U$ M)	427	511	139
– Runner-up´s offer (U$ M)	417	501	46

Regulation

ENRE
Ente Nacional Regulador de la Electricidad
(Electricity Regulation Agency)

Functions and Responsibilities

- to enforce Law 24065 and the terms of the concession contracts
- to establish regulations concerning:
  - *Security*
  - *Technical Norms and Procedures*
  - *Metering and billing*
  - *Meter use and control*
  - *Interruptions and Reconnections*
  - *Quality Standards*
- to prevent anticompetitive discriminatory and monopolistic practices
- to establish the basis for fixing tariffs and to assure their implementation

Regulation

DISTRIBUTION
Main Characteristics

- Public Service
- Obligation to meet all demand in the concession area
- No pre-determined investment requirement
- Must allow indiscriminate access to their distribution capacity to third parties
- Commit to specific quality levels
- Maximum tariffs
- Abandonment of facilities has to be approved by ENRE

Regulation

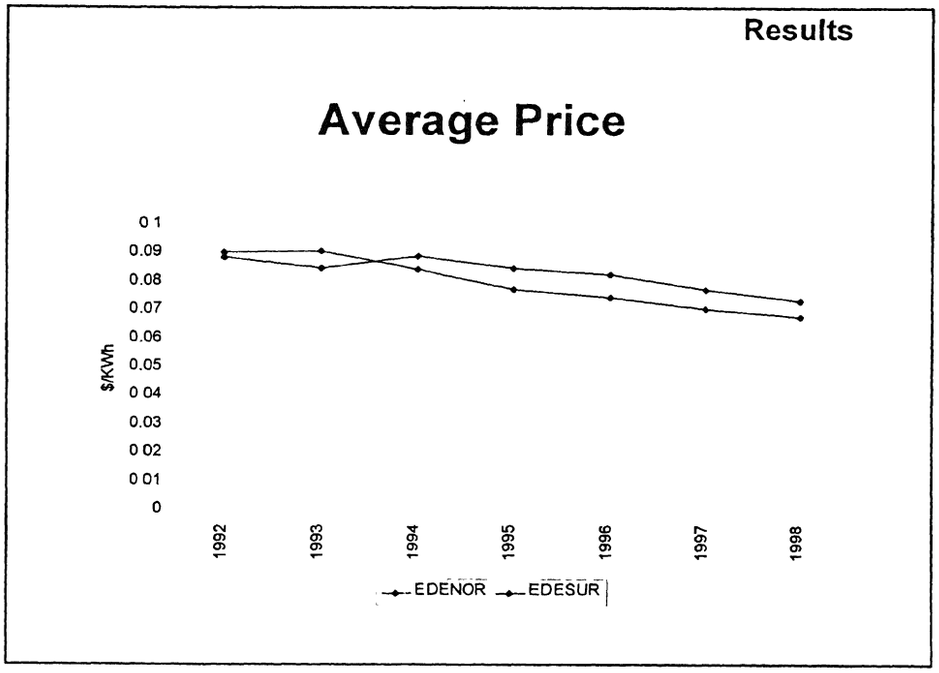
DISTRIBUTION
Tariffs

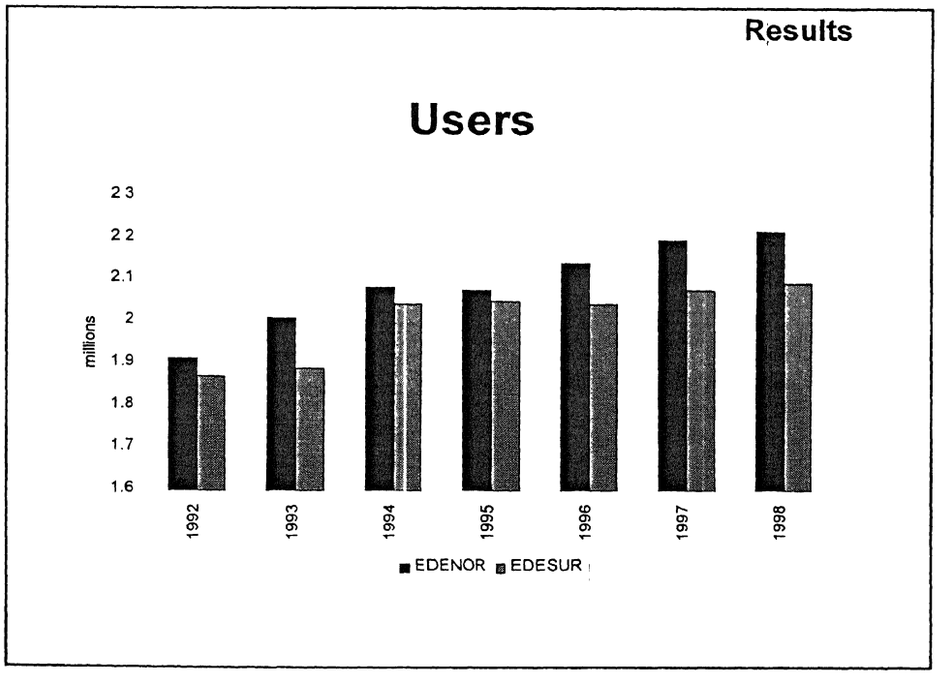
- Price cap (RPI-X+Y) on tariff structure
- 5 years revisions (First one 10 years)
- Complete pass-through of Wholesale prices
  - $T = Pw(1+\delta) + DVA$
  - where
    - » T Tariff
    - » Pw wholesale price (generation + transmission)
    - ≈ δ technical losses
    - » DVA Distribution Value Added
- right to buy at a "seasonal price"
- Transferred contracts with complete pass-through. New contracts pass-through only of seasonal price

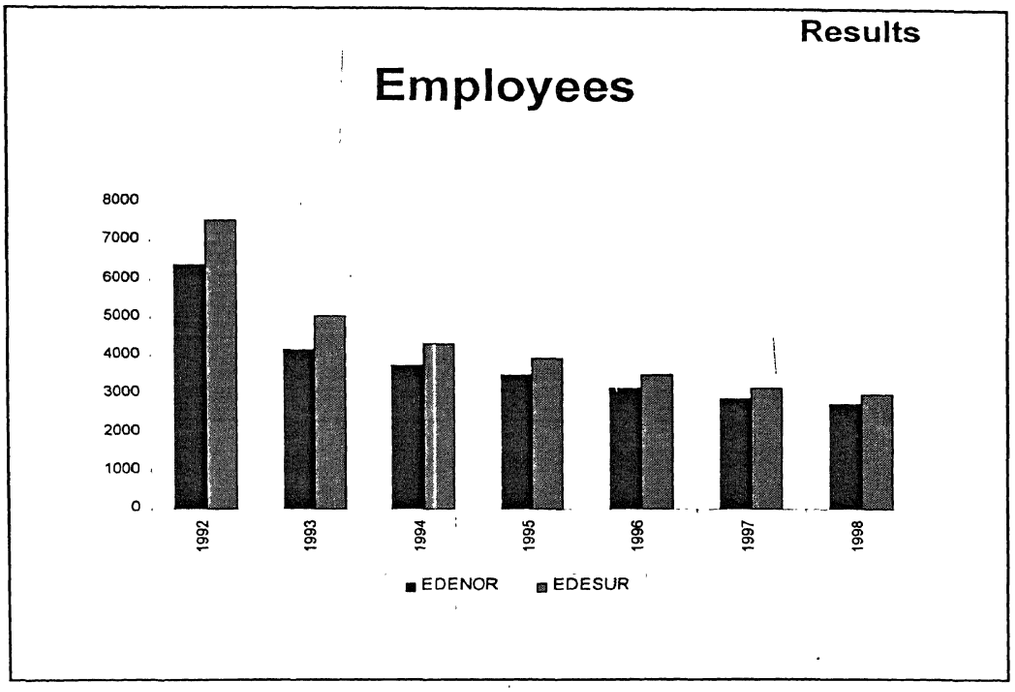
Regulation

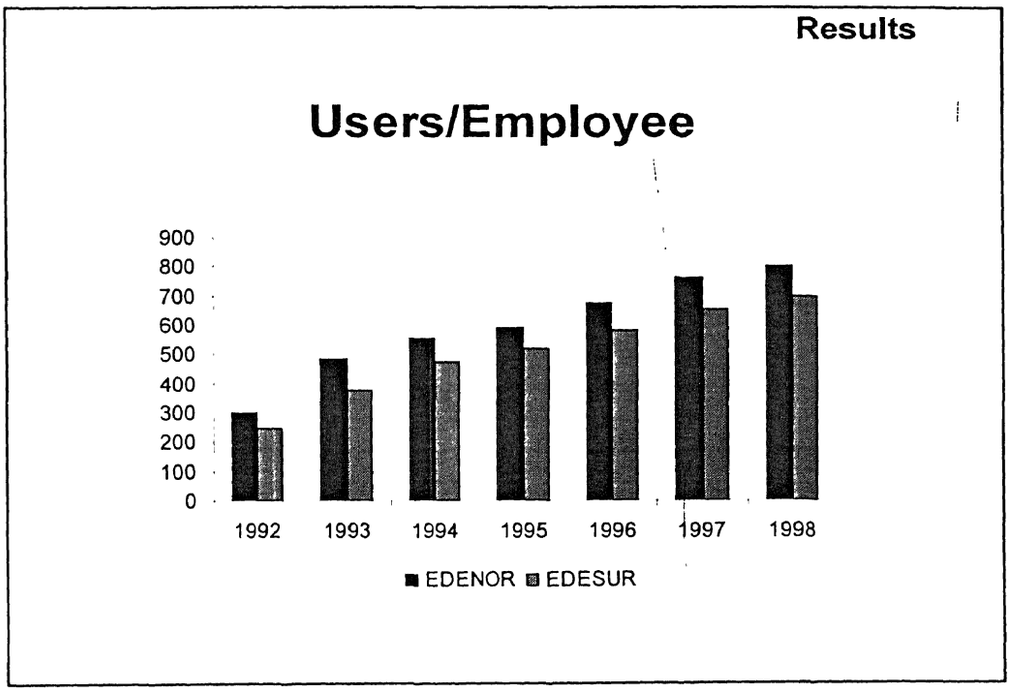
DISTRIBUTION
Quality Controls

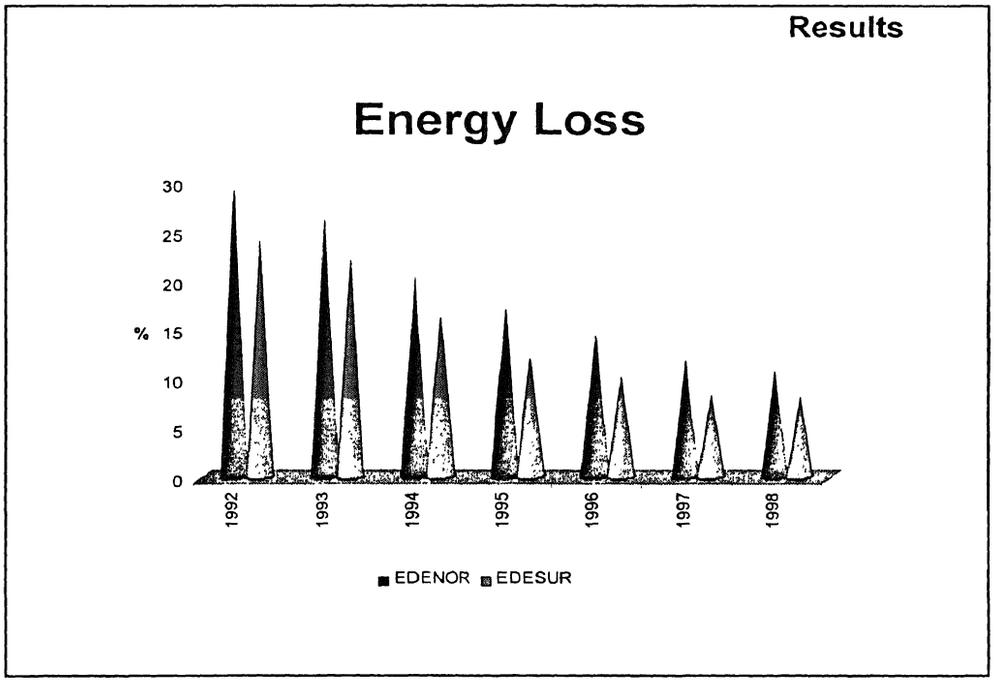
- Three Stages
  - » Stage 0 12 months of grace period
  - » Stage 1 36 months measures at MV level
  - » Stage 2 Measures at each costumer level.
- Quality of Technical Service
  - » Frequency of Interruptions
  - » Duration of Interruptions
- Quality of Technical Product
  - » Voltage Variations
- Quality of Commercial Service
  - » Handling of customers complaints
  - » Connection times
  - » Estimated billing

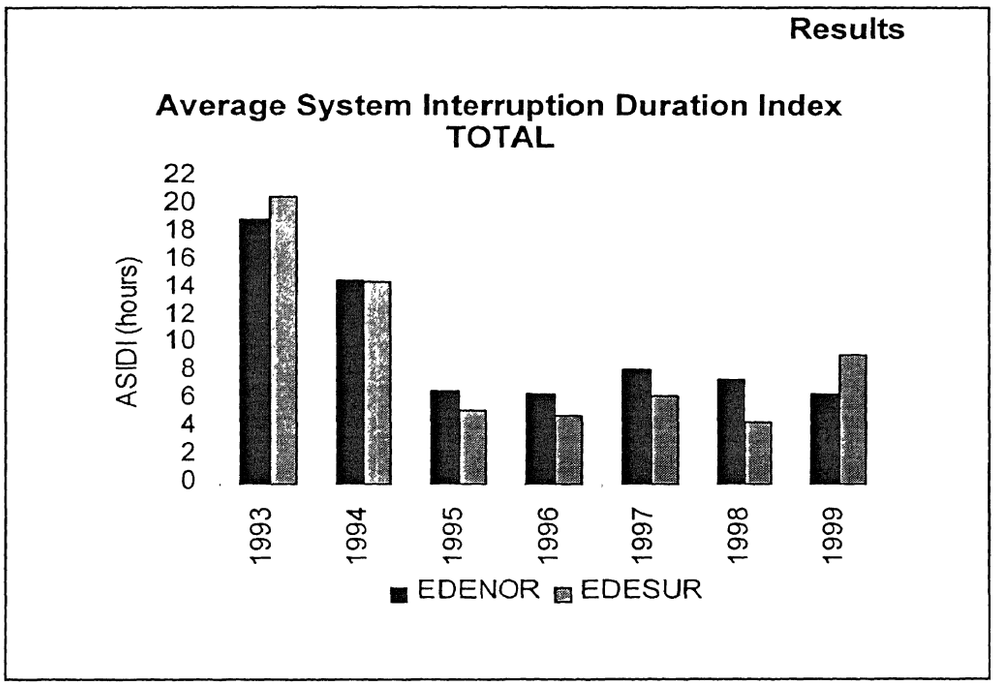

Results
Average Price
0 1
0.09
0.08
0.07
0.06
0.05
0 04
0.03
0 02
0 01
0
$/KWh
1992
1993
1994
1995
1996
1997
1998
EDENOR
EDESUR


Results
Users
2 3
2 2
2.1
2
1.9
1.8
1.7
1.6
millions
1992
1993
1994
1995
1996
1997
1998
EDENOR
EDESUR


Results
Employees
8000
7000
6000
5000
4000
3000
2000
1000
0
1992
1993
1994
1995
1996
1997
1998
EDENOR
EDESUR

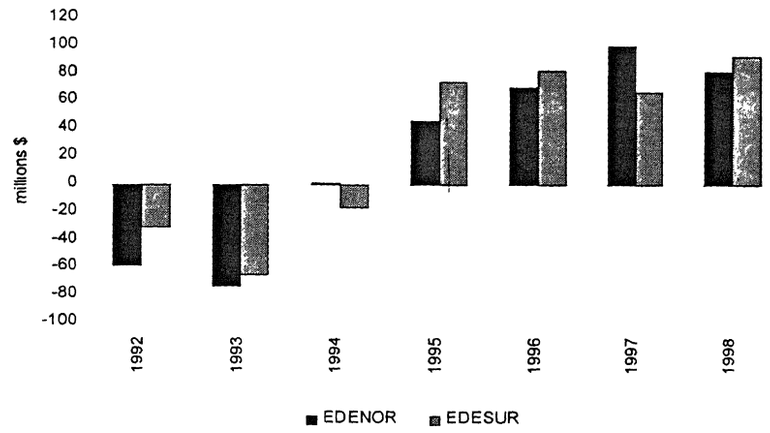

Results
Users/Employee
900
800
700
600
500
400
300
200
100
0
1992
1993
1994
1995
1996
1997
1998
EDENOR
EDESUR


Energy Loss
30
25
20
% 15
10
5
0
1992
1993
1994
1995
1996
1997
1998
EDENOR
EDESUR


Average System Interruption Duration Index
TOTAL
ASIDI (hours)
22
20
18
16
14
12
10
8
6
4
2
0
1993
1994
1995
1996
1997
1998
1999
EDENOR
EDESUR

Results

Net Profit



Conclusions

- **Problems (with the benefit of hindsight)**
  - Lack of detailed information (impedes comparisons)
  - Rigid concession contract (con or pro?)
    - » Increase in demand for quality
- **Benefits**
  - Positive results in terms of efficiency
  - Improvements in quality at constant prices
  - Positive externalities (on provincial companies)
- **Overall a positive experience**

Robert J. Phillips

Mr. Phillips is partner at the law firm Cameron McKenna which provides a comprehensive commercial law services to businesses, financial institutions and governmental authorities, with particular strengths in a number of industry sectors, advising clients on transactions and projects in many countries of the world.

CMS Cameron McKenna

POWER SECTOR REFORM AND PRIVATISATION



World Bank Institute

World Bank South Asia Region

in collaboration with

Tata Energy Research Institute

Power Ministries of Member Countries

and

State Bank of India

Infrastructure Development Financing Company

ICICI, Ltd

CMS Cameron McKenna

THE HURDLES TO SUCCESS

by Robert J. Phillips

Partner, CMS Cameron McKenna

cameron mckenna

CMS Cameron McKenna

THE HURDLES

- unbundling
- private sector involvement
- public sector counterparts
- regulatory and tariff
- assets and liabilities
- sharing the pain

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UNBUNDLING

- failure to consider full impact of unbundling at outset of restructuring process
- political interference
- need for direct contact with Government

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PRIVATE SECTOR INVOLVEMENT

- Share Disposal

  IPO v. Trade Sale

- Franchise
  (not mutually exclusive to share disposal)

- operational and management contract

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THREE SMALL STEPS FOR MAN - THREE GIANT STEPS FOR THE INDUSTRY

- Commercialisation

- Corporatisation

- Share disposal

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PUBLIC SECTOR COUNTERPARTS (1)

- failure to identify the team to have responsibility
- failure to allocate sufficient management resources
- failure to allocate sufficient time at board meetings
- failure to achieve high level leadership

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PUBLIC SECTOR COUNTERPARTS (2)

- Contracts

  What was originally done on a bilateral or multilateral basis between personnel within the same organisation will need to be reflected in a matrix of contracts

power- ppt - p8

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PUBLIC SECTOR COUNTERPARTS (3)

- These contracts will need to be in place before private sector invests
- need for objectivity in negotiations
- consider number of governments owned companies (GOCO)

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REGULATORY AND TARIFF ISSUES (1)

- Need for regulatory affairs group within GOCO(s)
- Need for Regulatory Commission to understand paucity of information in public sector (one of the reasons for privatisation)
- Personnel in GOCO(s) and Regulatory Commission should be given equal opportunity for training

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REGULATORY AND TARIFF ISSUES (2)

- Transparency of fixing tariff
- Regulator should not assume imposition not conferred by statute
- Regulator may be assisted by clearly expressing in statute balance between consumer and investor

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TRANSFER OF ASSETS

- By contract
- By transfer scheme

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TRANSFER SCHEME

- Authorised by legislation
- Allows optimum positioning of assets
- Allows subsequent re-transfer of assets during transition period

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PRE-EXISTING LOANS

A commercial decision as to how these should be allocated but will be affected by actual terms of loans

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REAL PROPERTY

- Consider avoidance of windfall profits to shareholders
- Sharing of benefits of property development between public and private sector

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ENVIRONMENTAL

Inherited contamination

- risk passes with the company
- risk remains with the public sector
- shared risk

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GOLDEN SHARES

- Non-participating shares
- Used to protect against particular steps which Government wishes to avoid, e.g. alienation of key assets transferred with GOCO

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TRANSNATIONAL LEGAL SERVICES

power- ppt - p17

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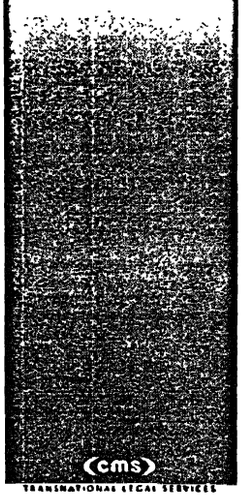
DATA

- Accuracy and quantum of information
- Proper investigation prior to bid procedure will eliminate time consuming follow-up by bidders
- Need to understand culture of private sector
- Time really is money

cms
TRANSNATIONAL LEGAL SERVICES

power- ppt - p18

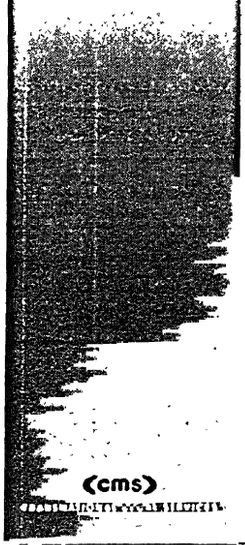
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POST-COMPLETION ADJUSTMENT

- On trade sale accounts will be drawn up after completion date
- There may need to be adjustments in light of information revealed by those accounts
- De minimus adjustments can be disregarded

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SHARING THE PAIN (1)

- If consultants are completely funded externally, then public sector participants are immune from the impact from delay, lassitude, procrastination and general inefficiency

Urjit R Patel

Mr. Patel is Executive Vice President at the Infrastructure Development finance Company Ltd (IDFC). Since 1998, Mr. Patel has also been a Consultant to the Ministry of Finance in New Delhi.

Prior to joining IDFC in 1997, he worked with the Reserve Bank of India and the International Monetary Fund.

He has Ph.D. in Economics from Yale University.

Power Sector Reform and Privatisation

Private Sector Participation in Distribution

Urjit R. Patel
Infrastructure Development Finance Company Ltd.

Breakdown in the Indian Power Sector

- **SEB Performance (1998- 99)**
  - Rate of Return : (-) 27.5 %
  - Commercial Losses : Rs. 18,081 crores
  - Subsidy : Rs. 30,345 crores
    1.7% of GDP at Market Prices
  - T & D Losses : 22.1 % (Reported)
    Reality : anywhere between 40 to 60 %
- **1997- 98**
  - Revenue Arrears : Rs. 11,535 crores
  - Outstanding Dues (to CSUs) : Rs. 16,800 crores
    1.1% of GDP at Market Prices
  - Out of every rupee spent, only 79 paise was recovered
- **Capacity Addition (8th Plan)**
  - Target : 30,538 MW - Achievement : 16,422 MW

Breakdown in the Indian Power Sector

- **Focus on generation**
  - Little incentive for efficiency
  - "First Among Equals", e.g. Fast Track vs. MoU vs. Mega Projects
- **Demand for Mega Watts is not backed by the ability-to-pay for Mega Watt Hours**
- **Distribution - the cash generating end - under state-ownership**



- **Unreliable demand estimates from the regimes of central planning and administered pricing**

Distribution Privatisation

Distribution Privatisation

- **Prevailing Model: Salient Features**
- **Limitations of the Model and a Way Out**
- **In Summary**

Distribution Privatisation

Prevailing Model: Salient Features

Observed in reforming states

Privatisation of Distribution

- **Against the backdrop of –**
  - Unfunded employee liabilities, e.g., pension fund commitments
  - In some cases, Long-term PPAs and escrowed distribution areas
- **State Governments have been –**
  - Carving-out distribution zones - combining urban and rural loads
  - Restructuring financially to create a positive capital base for the new entities
    - Asset Valuation, Apportionment of assets and liabilities, Setting off SEB dues etc.
  - Preparing Memorandum of Information (MoI), indicating T&D loss levels

Distribution Privatisation

Prevailing Model: Salient Features

Observed in reforming states

- **Regulation of Distribution Companies (Distcos)**
  - Cost-plus approach; annual tariff setting to ensure reasonable return on rate base to Distcos, at specified performance levels
  - Rate base and performance levels likely to be affected by the Government's "endorsement" of Asset Valuation and T&D Loss Levels indicated in MoI
- **Single Buyer Model**
  - The state owned transmission company to act as the sole agency for procurement and onward sale of power to Distcos

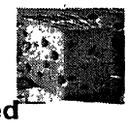
Rationale for 'pooling' low-cost and high-cost power --

- To ensure uniform price across different regions
- To facilitate honouring of the existing power purchase agreements

Distribution Privatisation

Limitations of the Model and A Way Out

Factors Diminishing Attractiveness of Distcos



- **Escrowing away of parts of distribution zones**
  - e.g., CESCO in Orissa - "Swiss Cheese Effect"
- **Long term liabilities, for which funding was not provided**
- **Major investments just prior to privatisation**
  - "Liabilities-side is a reality, asset-side is a belief"

Do not burden Distcos with these inefficiencies from the past.

- **Overvaluation of assets lead to higher tariff for consumers**

Avoid arbitrary overvaluation of assets.

Distribution Privatisation

Limitations... and A Way Out

Scope for Regulatory Uncertainty

- **Bidding in the dark, with regard to Regulatory approach and parameters**
  - Basis for asset valuation
  - Likely tariff levels
  - Expected performance levels
  - Timeframe for introducing retail choice

Spell out regulatory approach and parameters ex-ante, that is, at the time of sale.
Reduce scope for ex-post re-negotiation.

Distribution Privatisation

Limitations... and A Way Out

Impediments to Efficiency

- Single Buyer Model - no choice for Distcos
- Long term PPAs of SEBs with poor credit rating
- Monopoly franchises - no choice for end-consumers

Allow choice to Distcos; and to consumers, in due course.
Allow efficient producers and creditworthy consumers to find each other.

- Cost-plus regulation and annual review diminishes incentives for aggressively pursuing efficiency

RPI-X or Performance-based regulation with longer periods between reviews.

Distribution Privatisation

Limitations... and A Way Out

Scope for Hiding Inefficiencies

- Combining urban and rural zones

Start privatisation with urban zones.
Explore ways to enhance viability and attractiveness of rural supply.

- Routing cross-subsidy through operating agency

Give subsidy/assistance directly to targeted segments.

Distribution Privatisation

In Summary

DO NOT...

- **Burden Distcos with the inefficiencies from the past**
  - e.g.. Unfunded liabilities
- **Undertake major investment programmes just prior to privatisation**
- **Institutionalise Single Buyer Model**
- **Encourage SEBs or Governments to enter into long term take-or-pay commitments for power purchase**
- **Escrow distribution zones**
- **Overvalue assets arbitrarily**
- **Combine urban and rural zones for privatisation**
- **Route cross-subsidy through operating agency**

Distribution Privatisation

In Summary

DO...

- **Start privatisation with urban zones**
- **Spell out regulatory approach and parameters at the time of sale**
- **Allow choice to Distcos and to consumers in due course**
- **Explore ways to enhance viability of rural electricity supply**
  - Co-operatives
  - Privatisation based on minimum subsidy bidding etc.
- **Give subsidy/assistance directly to targeted segments**

D P Sengupta

Dr. D P Sengupta graduated in Physics from Calcutta Presidency College and in Electrical Engineering from I.I.T. After his PhD from Liverpool University he taught there for 5 years before joining the Indian Institute of Science, Bangalore, where he continues as an Emeritus professor. He also holds an Honorary Professorship at the National Institute for Advanced Studies, Bangalore.

Prof. Sengupta's research interests extend from Power Systems Dynamics and control to the study of the problems of Rural Electrification in India, Loss Minimization in Transmission and Distribution, Load Forecasting and Demandside Management. It was based on his studies that the "Bhagyajyothi" programme of "one bulb for one hut" was initiated in Karnataka State. He is presently engaged in a project from Karnataka State Electricity Board for Energy accounting and computerization of the data system.

Prof. Sengupta has authored a number of books and technical papers. His books for children have been widely acclaimed.

"Building consensus on reforms: Participation of the Rural sector"

D. P. SEN GUPTA
Professor (Em) Indian Institute of Science
Professor (Hon) National Institute of Advanced Studies
BANGALORE

The Power sector in India has grown more than 50 times in 50 years since 1950, and the installed capacity of 93 GW is grossly inadequate.

This growth has had a significant impact on the rural sector

In 1950, 3000 out of 0.56 million villages were electrified
More than 0.5 m villages are now electrified.

In 1950, only 18000 pumpsets were energized
Nearly 13 million pumpsets are now energized.

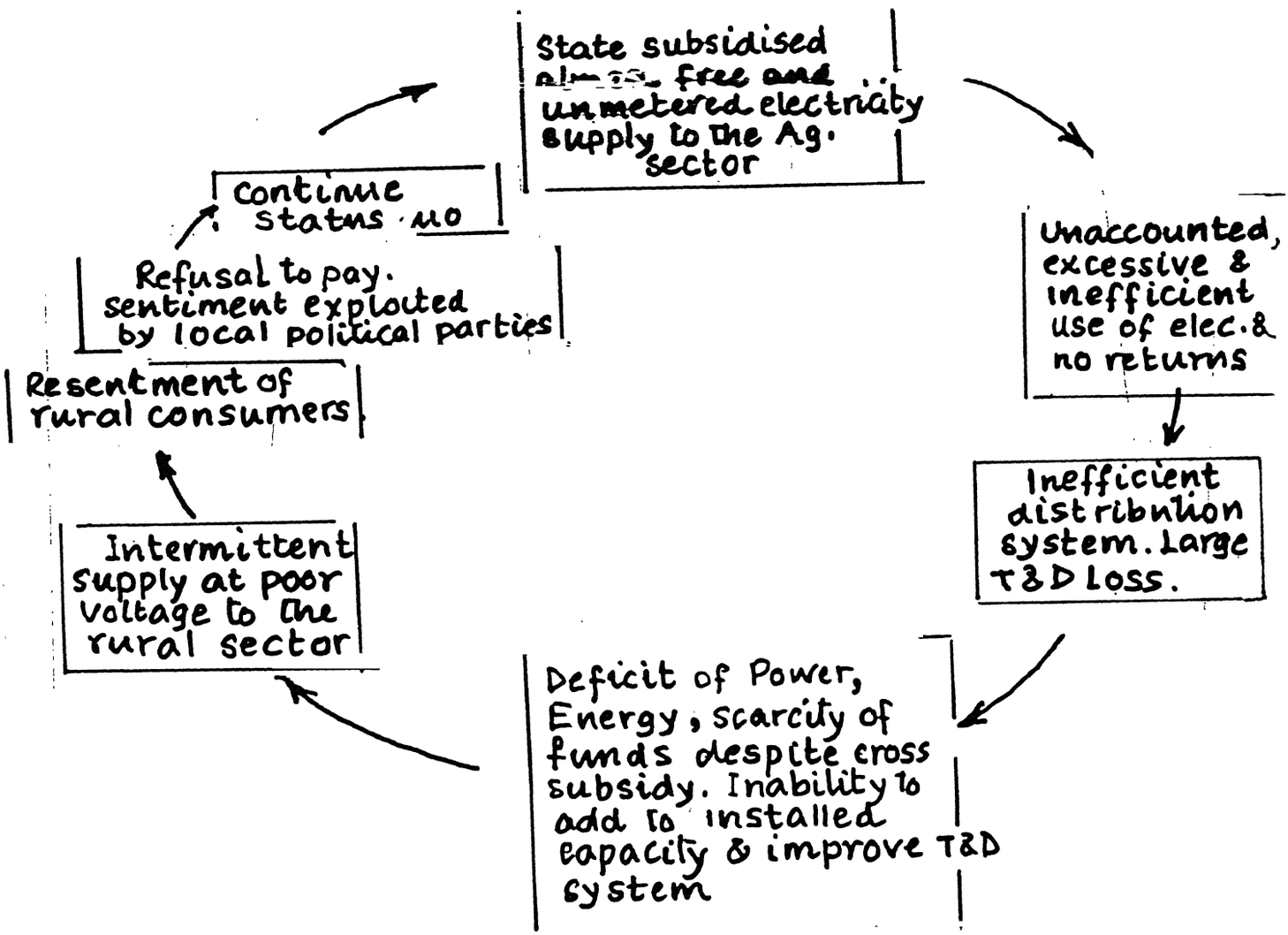
One of the major contributors to India's turnin from a food deficit to a food surplus country

Agricultural consumption of electricity has grown very significantly.

Percentage consumption by major consumer groups			
Year	1984-85	1989-90	1996-97
AGRICULTURE	18.4	26	32.6
DOMESTIC	9	13	16.2
INDUSTRY	50.6	42	33

Agricultural consumption is relatively lo eastern states and high in northeast Southern are by and large free.

The vicious circle of the Agricutural Power sector



Focus on KARNATAKA STATE

Installed capacity : 4216 MW : 67% HYDEL
≈ 33% THERMAL

1998-99 recorded Energy consumption
→ 22882 MU

k (Unrestricted) POWER demand > 4800 MW

Unrestricted ENERGY requirement > 28000 MU

Expected deficit: Peaking Power 12-15%
Energy 15-20%

No. of villages ≃ 27000 : No. of pumpsets ≃ 1.2 m
Rural Energy consumption 35-40%
T&D Losses 30-25%

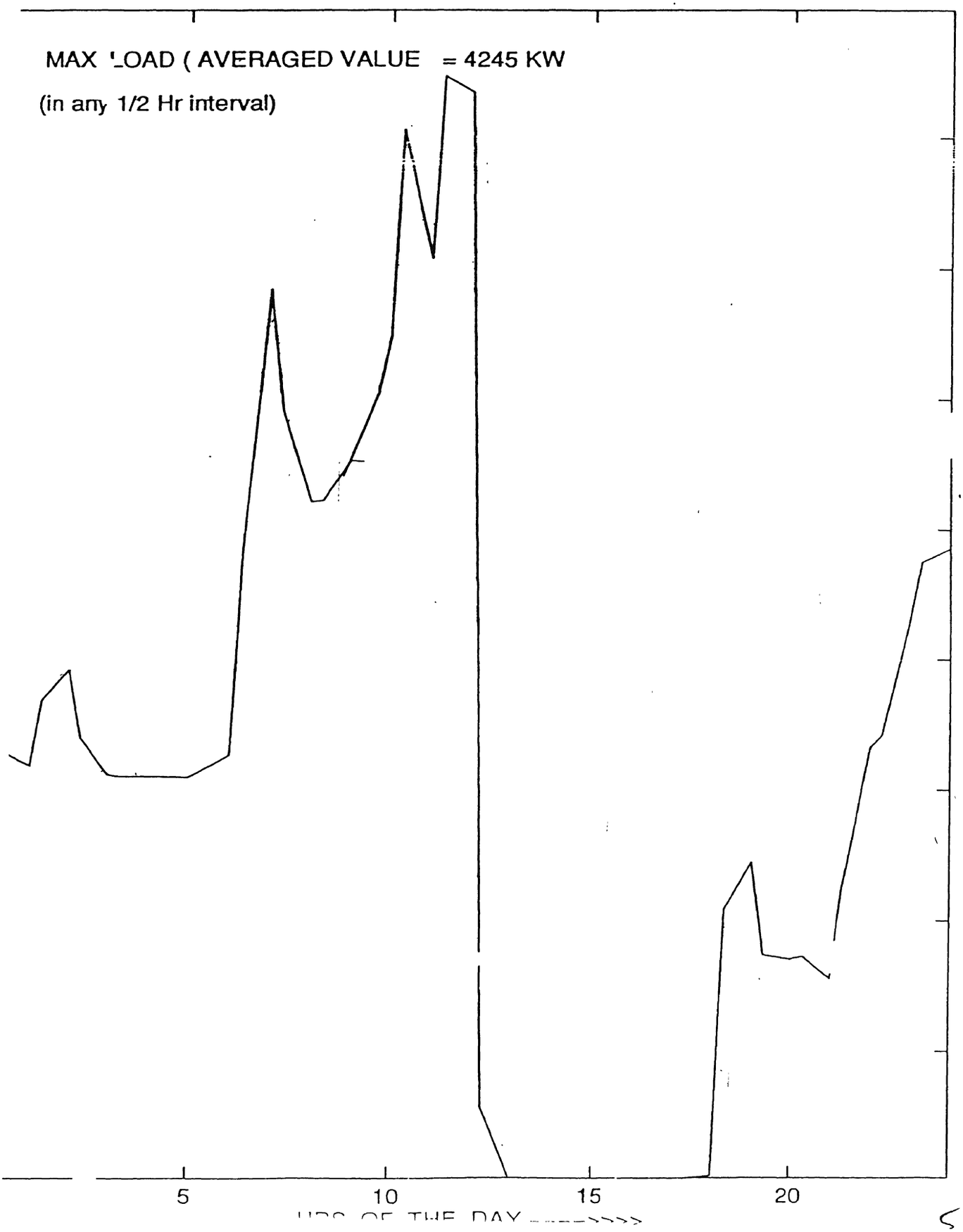
In other words unaccounted Elec. energy ≃ 65%

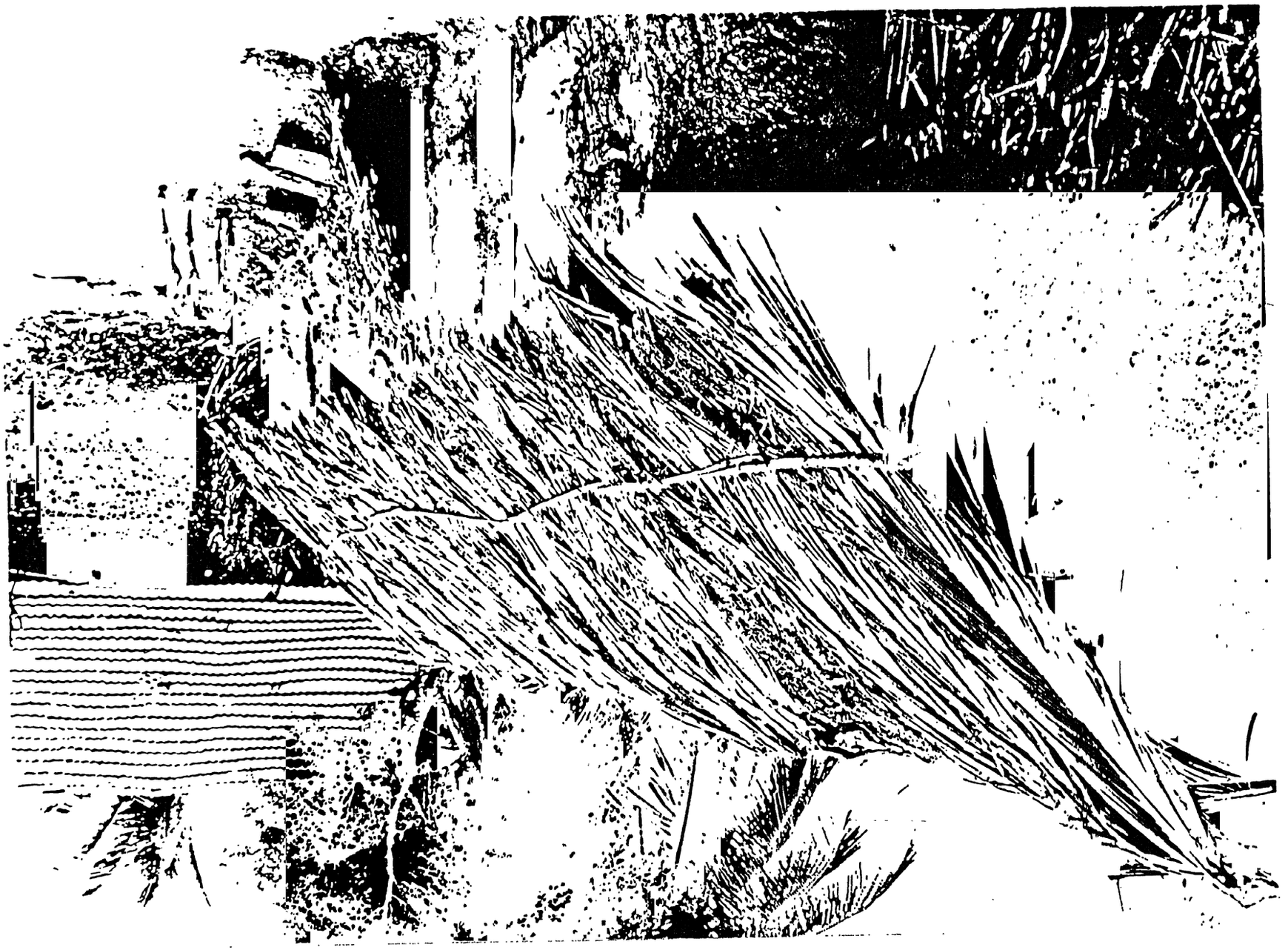
Revenue collected from less than 35% of Energy purchased.

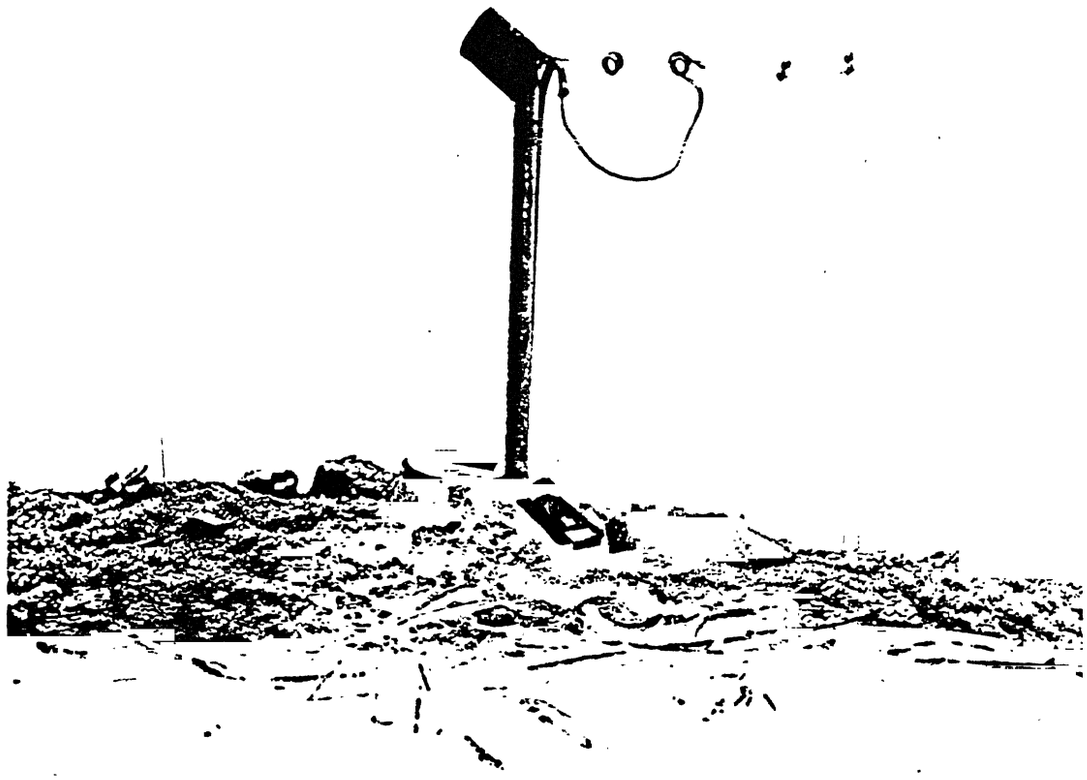
* Industrial & Commercial consumers constituting about 11% contribute about 68% of the revenu

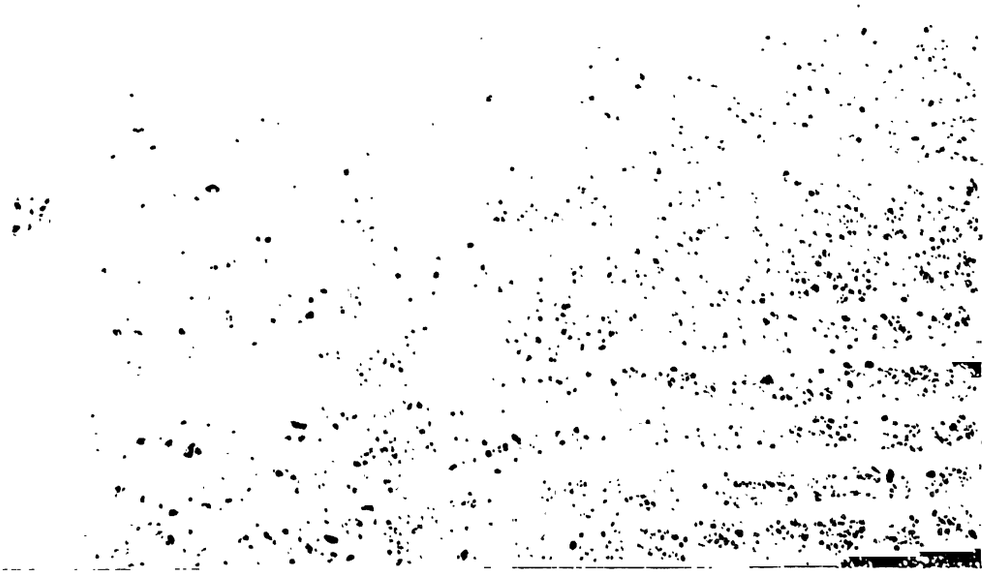
* BHAGYAJYOTHI scheme of "one bulb one hut" presently supplies 2 million huts using ≃ 2% of the total energy

F3 – LOAD CURVE FOR SEPTEMBER









Privatization: What about the rural sector?

If the Government undertakes to provide subsidy, it will amount to:

Approximately Rs 2000 crores per annum @ Rs 2/- for 10,000 mU cons.
($465 m)

For a more realistic rate of Rs 3.50 to include distribution loss
the subsidy comes to Rs 3500 crores [$815 m]

It is essential that the rural consumers pay (at least partly) for the energy they consume

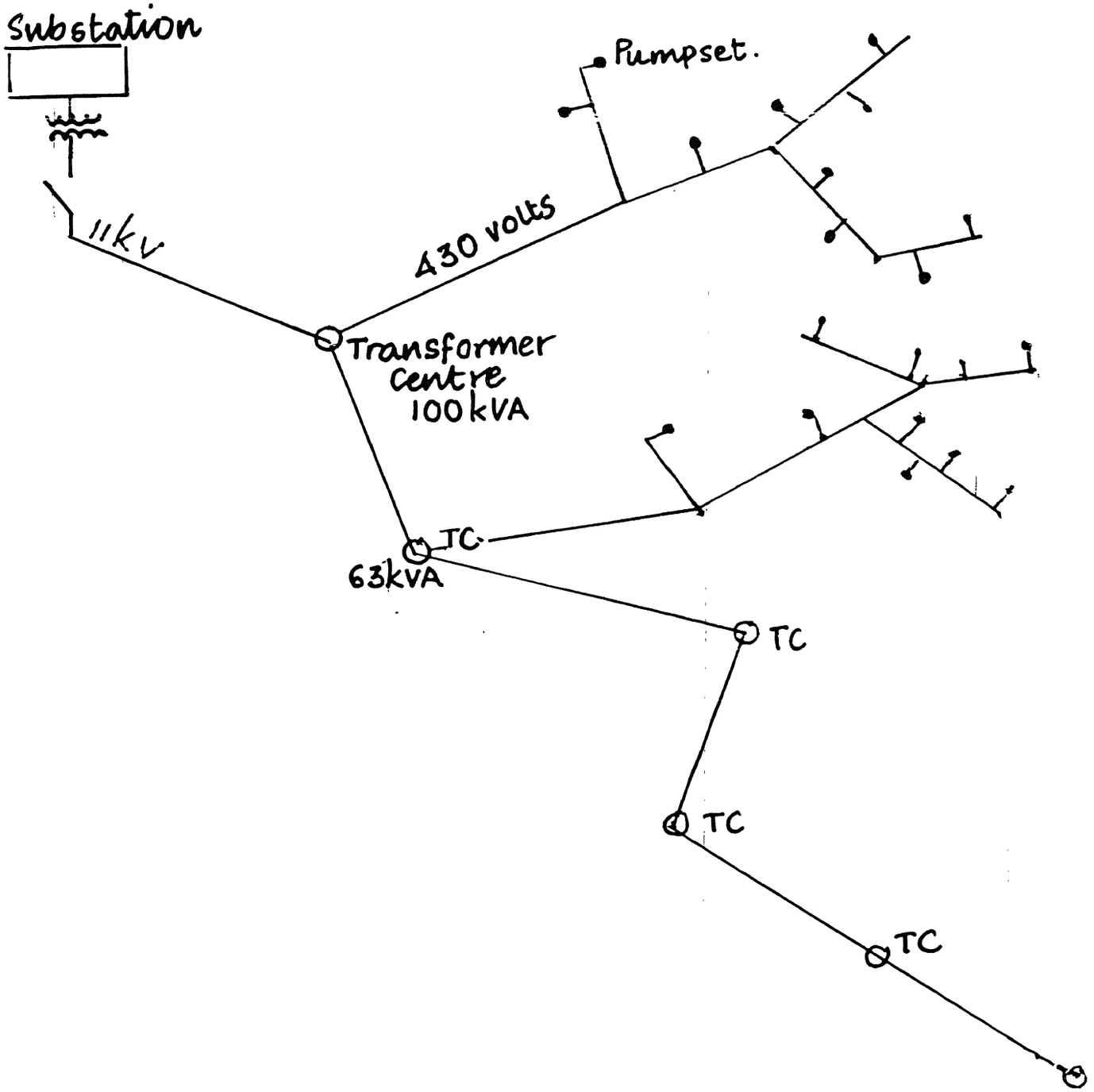
How can the pumpset users be involved in the process of reforms and persuaded to share the cost of energy they consume?

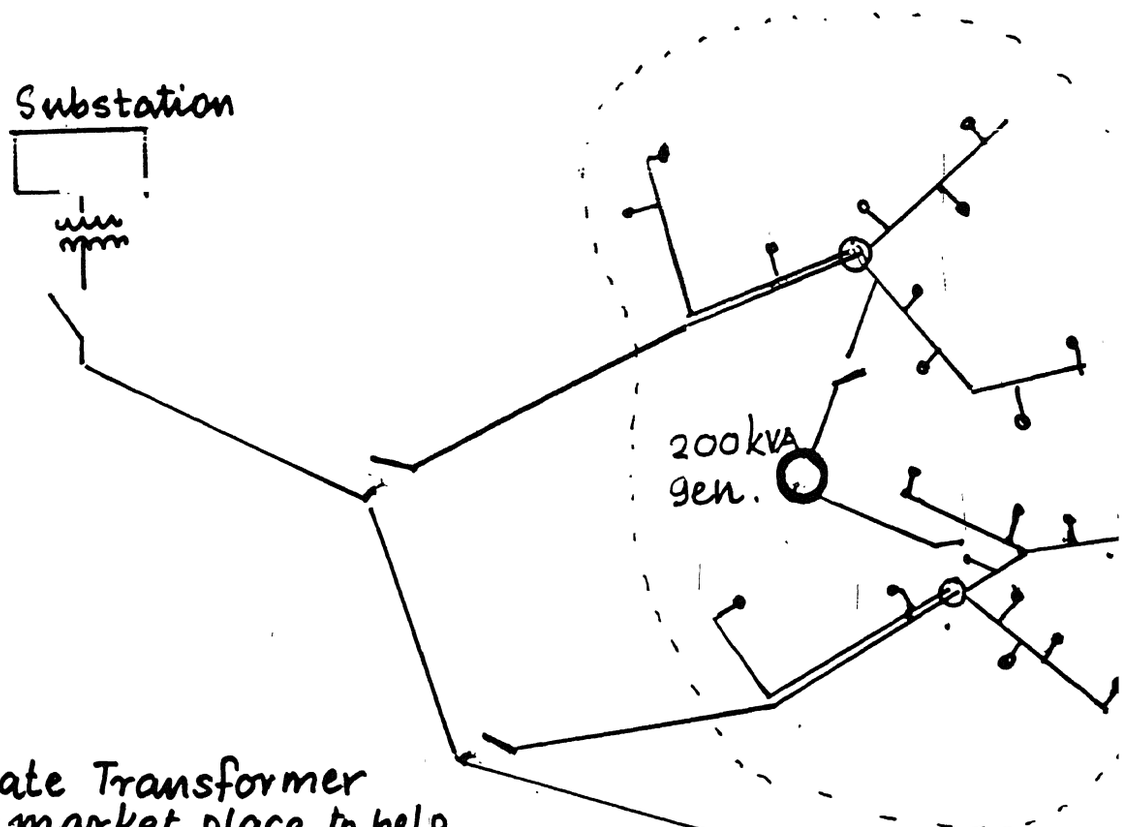
Informal discussions indicate that the pumpset owners are prepared to pay partly for the energy they use.

PROBLEMS → 1) How to ensure regular supply at proper voltage?

2) How to measure the energy consumed?
[Even if the pumpset owners permit installation of ENERGY METERS, reading 1.2m meters is not going to be easy and will be costly. Initial cost of meter installation will be about 120 crores]

A proposal to involve rural consumers





1) Locate Transformer at market place to help rural consumers to identify THEIR source of electric power (Distribution loss reduced in the process. Voltage improves)

2) Small independent power producer, provided capital subsidy to set up 200kVA - 1 MVA generators

3) Rural consumers assured continuous supply at better voltage provided they PAY, at least partly for the electricity they consume

4) The 11kV, KPTCL grid is .STANDBY source.

5) Instead of installing energy meters, Cards (like phone cards) may be used

6) Bhagyajyothi consumers are levied a fixed charge of Rs 10/- a month.

On an experimental basis, we may identify 4-5 centres and instal generators

Extensive discussions with rural consumers, distributing pamphlets written in simple language, convincing them that the transform and the generator belong to their villages and if they want continuous supply at proper voltage they should pay at least for a part of the units they consume.

The licensee takes complete responsibility of running the generators and feeding electricity to the villages identified. The licensee purchases electricity from the grid during generator down-time.

T & D losses are drastically reduced by decentralized local generation.

Small power producers may be involved

Equivalents of phone cards may be bought by the pumpset owners from the licensee for a certain number of units to be consumed. Power supply to a consumer is switched on by insertion of the card and lasts as long as the units last

Consumers will realize the urgency of improving the efficiency of their pumpsets when the cards run out fa

CONCLUSION

For Power reforms to succeed the needs, problems and the compulsions of the rural sector have to be taken cognizance of. Government subsidy is no answer.

Decentralized power production by small IPPs with grid back up with pumpset owners paying for their consumption, may be the answer.

Involving rural consumers and seeking their participation are essential.

Bhagyajyothi scheme of 'one bulb for one hut" must continue. Those who abuse the scheme have to be penalised.

Consensus on Reforms:
evolving content through participatory process

Girish Sant
Prayas

Consensus on Reforms:
evolving content through participatory process

- Building consensus around a model or Building a model through consensus?
- Who are the stake-holders being considered?

Consensus on Reforms:
evolving content through participatory process

What is needed for consensus?

- Open participatory process of decision
- Information about crisis, options, and their implications
- Confidence in the process and lead actors

Consensus on Reforms:
evolving content through participatory process

What really happens?

- Process
- Information
- Language
- Confidence - historical factors

Consensus on Reforms:
evolving content through participatory process

Example of Electricity 2000 Bill

- Three drafts in circulation
- Aims of Act not included with draft Act
- Envisaged structure of sector not articulated
- Options assessment not carried out
- Need for drastic action not justified

Consensus on Reforms:
evolving content through participatory process

Example of California Process

- Problem definition, possible directions ⇧ Public
- Blue book: Preferred direction ⇧ Public
- Procedural planning - involving stake-holders
- Presentation of proposed decision ⇧ Public
- Decision + road map for transition

(Process took only 3 years)

Consensus on Reforms:
evolving content through participatory process

Conclusion

- Participatory decision process
- Sharing of information and analysis
- Confidence building measures
- Separation of "Urgent" from "Fundamental"

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Consensus on Reforms:
evolving content through participatory process

What is needed for consensus?

- Open participatory process of decision
- Information about crisis, options, and their implications
- Participants in the process and legal rights

Consensus on Reforms:
evolving content through participatory process

"What really matters"

- Process
- Information
- Analysis
- Open discussion of alternatives

Consensus on Reforms:
evolving content through participatory proces

God

Consensus on reforms
evolving content through participatory process

- *Example of California Process*
  - Problem definition, possible directions ⇨ Public
  - Blue book: Preferred direction ⇨ Public
  - Procedural planning - involving stake-holders
  - Presentation of proposed decision ⇨ Public
  - Decision - road map for transition

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Conclusion

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- Sharing of information and analysis
- Confidence building measures
- Separation of "game" from "theatre"

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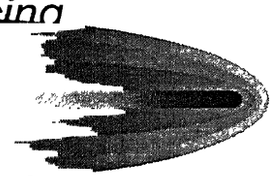
Consensus on Reforms:
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Conclusion

- Participatory decision process
- Sharing of information and analysis
- Confidence building measures
- Separation of "Urgent" from "Fundamental"

SESSION 5
FINANCING THROUGH COMMERCIAL BANKS

Lending Constraints in Limited Recourse Power Project Financing



by

K.B. Gopalakrishnan

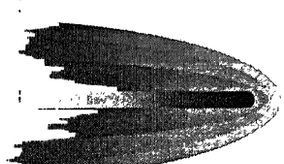
Senior Vice President

Project Advisory & Structured Finance

SBI Capital Markets Ltd.- Mumbai

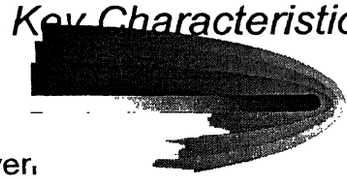
May 16, 2000

Flow of Presentation



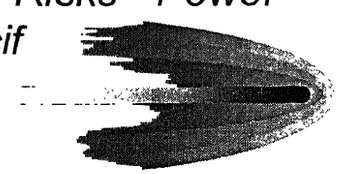
- Key Characteristics of Power Projects
- Key Risks - Power project specific
- Sector Specific Issues - Power
- Funding Requirements -Power (2005)
- Financing Constraints
- The Way Forward

Power Projects Financing - Key Characteristics



- Capital Intensive - Finance Driven
- Long gestation period
- High IDC component in the project cost
- Rupee Revenues & Forex debt obligations - Forex risk
- Security Package is crucial for lenders

Infrastructure Financing Risks - Power Project specif



- Demand Risk- Low.
- Project Completion Risk - Low to Medium
- Operating Risk - Medium
- Financial Risk
  - Forex Risk - high
  - Inconvertibility risk - Medium
- Political Risk- Medium to High
- Counter Party Risk - High
- Legal & Regulatory Risk- Medium to High

Power Projects Financing - S ...Issues

- **Poor financial health of SEBs**
  - low metering & recoveries
  - mounting subsidies and political freebies
- **Operational inefficiencies**
- **Unsatisfactory progress in reforms**
- **Escrow capacity of most SEBs exhausted/non-existent**

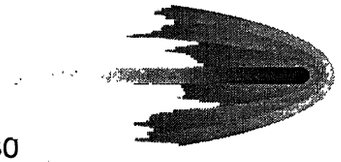
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Power projects -Funding Requirements & Availability 2005-2006

	Rs. in ...	USD in bn
Requirement		
Power	**5000**	**110**
Availability		
FIs	**400-500**	**10-12**
Banks	**200-250**	**4-6**
Total	**600-750**	**14-18**

6

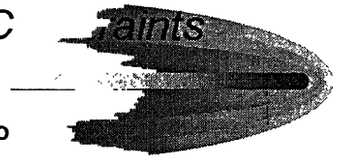
Estimated gap in Power Project Financing 2005-2006



- Typical funding at Debt:Equity of 70:30
- Domestic debt at 50% of the total debt component
- Total power project finance that US$ 14-18 bn (Rs 70000 core) can support - US$ 45 bn (Rs 2,00,000 crore)
- Funding Gap at requirement of US$ 65 bn

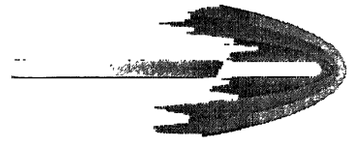
  (i.e.US$ 110bn -US$ 45bn)
- Above gap may have to be met through bilateral/multilateral/government funding/ECB's

Power project financing - C



- **Exposure norms for FIs/Banks based o**
  - industry, prudential & project
- **Asset - liability mismatch for Banks**
- **Sanctions abound - disbursals few**
  - Non allocation of Escrow
  - Inability to tie up equity & project agreements not in place
  - State support agreements not finalised
  - Long drawn litigation - e.g. Madhya Pradesh
- **Lack of consensus on Escrow alternatives**
  - Third party sale
  - Escrow cover by State Govt of identified revenues
  - GOI Counter Guarantee
  - Recourse financing

Power Projects - Alternatives to Escrow



- SEBs with escrowable capacity
  - 3 tier security system to continue as of now
  - consideration for states where reforms are effective
- SEBs which do not have any escrowable capacity

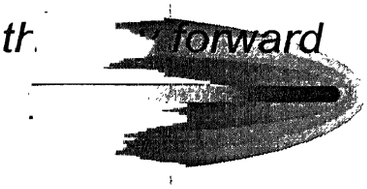
  &
- SEBs desiring IPPs beyond escrowable capacity

  State Govt. commitment towards implementation of reforms

  Time bound improvement in operations

9

Power project financing - th[illegible] forward



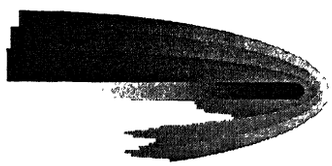
State Electricity Boards

- Restructuring & tariff rationalisation
- Privatisation of distribution on a war footing
- Renovation & modernisation of existing plants
- Detailed study of system losses : Energy Audit
- Measures for reducing T&D losses

Banks

- Long term funds : 10/15 year bonds
- Pension/PF/Insurance funds - route through banks
- Long dated refinance window

10



Thank You

Gap Between Approvals and Financial Closure

A Presentation
by
Rajiv Bhardwaj

Current Status - Private Power

- Techno-economic clearences - 28,862.5 MW
- In-principle clearences - 10,090.9 MW
- Finances tied-up with IFIs - 19,836.0 MW
- Seeking financial tie-up - 16,604.0 MW
- Under Construction* - 4,876.0 MW
- Fully commissioned * - 4,808.5 MW

* Inclusive of Licencees

Current Status - Private Power

Progress over the last eight years

- ⌘ Projects proposed - over 100,000 MW
- ⌘ Projects commissioned - 2700 MW
- ⌘ Financial closure (FC) - 3000 MW
- ⌘ Likely to achieve FC shortly - 12,000 MW
- ⌘ Projects abandoned in the last 12 months due to lack of progress - 8,000 MW

Status of Projects

Year	MoU	FC	Commissioned
1992	9	8	2
1993	6	3	0
1994	16	9	2
1995	11	5	1
	42	**25**	**5**

From Approval to Financial Closure

- **Approval** – Investment proposal found to be viable by prospective promoters
- **Financial Closure** – Execution of documents relating to debt financing of the project
- **Intermediate Steps**
  - Approvals and clearances from relevant authorities
  - Tie-up with other agencies involved and finalisation of agreements (e.g., PPA, FSA, O&M, EPC)

Fundamental Causes of Delay

- Substantial gap between Promoters and lenders perception of risks and project viability
- Differences in objectives of promoters, lenders, and approving/Govt. agencies
- Involvement of a large number of facilitating and regulatory agencies and organisations

Comprehensive Risk Analysis - Technical and Economic

- ⌘Credit risks
- ⌘Construction risks
- ⌘Market and operating risks
- ⌘Financial risks
- ⌘Political risks
- ⌘Legal risks

Credit Risks

- ⌘Power Purchaser
- ⌘Fuel Supplier
- ⌘EPC contractor
- ⌘Insurance company
- ⌘O&M contractor
- ⌘Guarantor

Construction Risk

- Cost over-run
- Time Over-run
- Performance

Market and Operating Risks

- Revenue/Expense divergence
- Plant performance
- Excessive Operating expense
- Off-taker performance
- Competition

Financial Risks

- Interest rate risk
- Foreign Exchange risk
- Inflation

Political Risks

- Expropriation
- Change of Law
  - National
  - State
  - Tax-related
  - Environmental

Legal Risks

- Inadequate Legal Framework
  - Legislation
  - Case law
  - Administrative law
  - Regulation
- International, state, provincial jurisdiction

State of the SEBs

- Financial Condition of the SEBs
- Ability to honor 20-30 year PPAs
- Lack of reliable financial and operational indicators
- Inability to provide suitable security mechanisms

Promoter/Developer Profile

- Lack of Experience
  - Delays in getting requisite approvals
  - Enhanced risk perception on the part of the lender
- Lack of Financial Strength
  - Inability to Bring in Full equity Contribution Up-front
  - No ROE for initial investments
- Different Policies and frequent relaxation has led to lack of discipline on the part of the promoters
- Lack of Commitment borne out of unrealistic expectations

Project Status

- Projects come to prospective lenders at various stages of development
- Quality of preliminary information memorandum
- Support available from
  - Central and State Governments
  - Approving agencies
  - Local people
  - Environment concern groups

Contractual Agreements

- Project financing is fundamentally based on and secured by contractual agreements
- Differences between contracting parties is a notorious cause of delay
- Weak Financial Strength of Contracting parties adds to the risk perception of lenders and adds to delays - SEBs, coal companies
- Liquidated damages considered insufficient by lenders e.g., EPC, O&M, FSA

Project Economics and Financial Projections

- Apprehensions regarding sustainability of all contracted agreements and increases in cost
- Expiry of bids relating to EPC and O&M before financial closure and consequent renegotiations
- Govt. policies are not yet very clear - e.g., Liquid Fuel Policy, escrowability
- Tax benefits such as 10(23G) tend to remain equivocal
- Fears regarding re-opening and renegotiations of PPAs

Project Economics and Financial Projections

- Changes in cost
  - Increases in fuel cost
  - exchange rate variations
  - Interest rate variations
  - increase in equipment costs
  - increase in construction costs
- Heavy dependence on international markets
- Unreliability of sustained predictable revenue streams

Interconnection, Transmission and Related Infrastructure

- Ability of SEB to provide adequate evacuation systems
- Grid Infrastructure
- Fuel and other transportation facilities

Payment Support and Security Mechanisms

- Escrow cover is unavailable in many instances
- Charge on assets is an illiquid security
- Counter-guarantees no longer offered by GOI
- Exercisability of State government Guarantees is suspect
- Absence of adequate insurance cover

Other Causes of Delay

- Numerous approvals have to be sought
- Number of approving agencies
- Approvals are often inter-dependent
- Promoters delay execution of documents at times in order to avoid commitment fees
- Lack of experience of promoters in procedures relating to financial closure
- Lack of risk capital

Suggestions

- **Reforms in the sector**
- **Standardization and transparency** for enhanced information sharing and dissemination
- **Specialisation** to reduce costs in terms of time and money
- **Prudence and discipline** intended to add credibility to systems, procedures and guidelines laid down by Banks and FIs

Suggestions

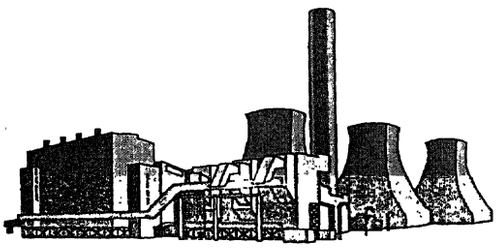
- Frame basic and standard documents (akin to ISDA)
- Lenders should frame basic principles and guidelines
- Frame a process chain of steps in power sector investment make it easily available to prospective promoters

Suggestions

- Provision of fee based services relating to getting approvals and preparing basic documents and information memorandums
- Standardise format in which information is sought by funding agencies
- Re-look at debt-equity ratio

Suggestions

- Cohesive and consistent power sector planning based on reliable data
- Reforming/replacing the SEBs



Presentation to The World Bank Institute

on

"Enhancing Project Bankability Through Innovative Risk Mitigation Models"

by

Mr. Ravi Suri

May 16, 2000

ABN·AMRO Bank

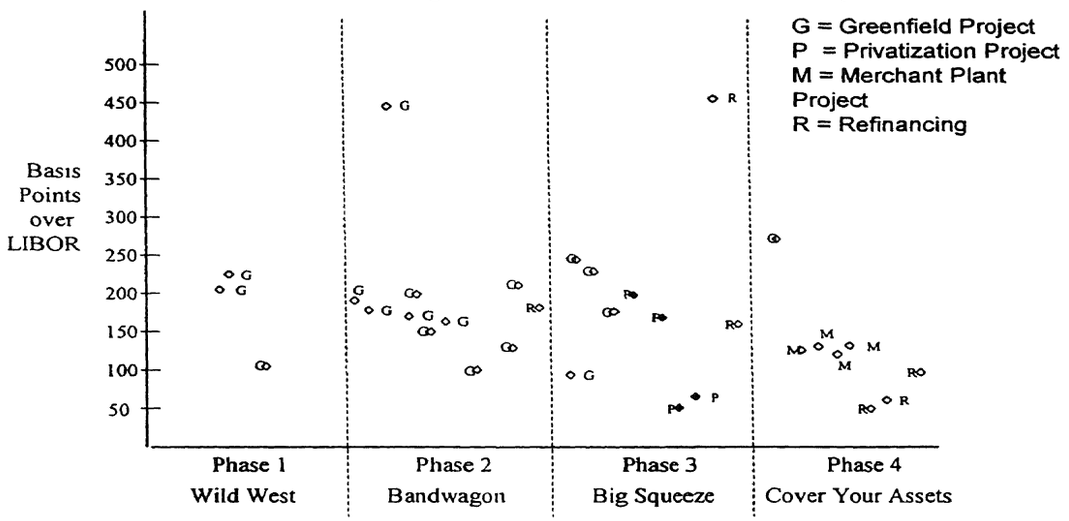
Agenda

- Phases of IPP Development
- Power Sector Reforms
- Issues Related to SEB Financing
- Payment Security Structure for an IPP
- Financials of State Governments
- Cross Border Risk Mitigation
- Credit Default Swaps
- European International Bank Project Loan Structure
- Political Risk Insurance
  - → MIGA
  - → ECAs
  - → Private Insurers
- World Bank Partial Guarantee Program
- Bilateral A/B Loan Co-financing

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Phases of IPP Development

Distribution of Average Interest Rates for Global IPP Projects



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Phases of IPP Development (Contd.)

- **The Wild West:** If there are rules, they have not been in place long enough to have a predictable direction. Everything is possible or impossible. The development effort is expensive and frustrating.
- **The Bandwagon:** The market has been discovered and declared hot by developers. Lending institutions are comfortable with project finance. Competition grows fast.
- **The Big Squeeze:** All the competitors are offering increasingly competitive terms to the Govt. The competition squeezes power prices and profit margins and shifts more risk to the developer.
- **Cover Your Assets:** The market is extremely competitive and revenues are exposed to market forces.

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Power Sector Reforms

- In 1991, the Govt. of India (GOI) announced a liberal policy to invite private players to set up generating capacity. The policy was based on a cost-plus tariff.
- The GOI also decided to counter-guarantee the PPA obligations of the state governments for eight fast-track power projects.
- The power policy evoked interest from many developers who rushed to set up generating capacity in India.
- However, when the GOI decided to restrict the counter-guarantees to only eight projects, financing became challenging as the State Electricity Boards ("SEBs") are not creditworthy.
- India should have opened up the transmission sector first since India lacks an integrated grid and it is not possible to wheel power if an SEB defaults.

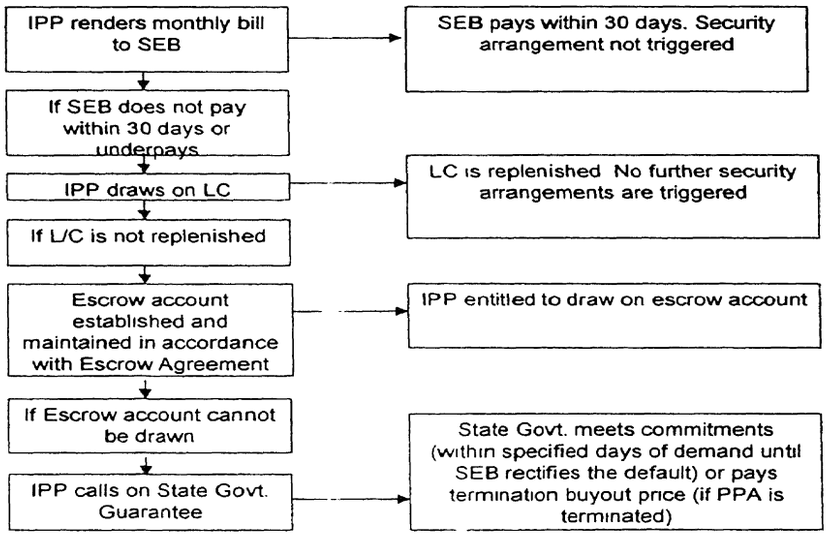
Power Sector Reforms (Contd.)

- However, India is addressing these issues. The following initiatives have been taken:
  - Orissa SEB has been unbundled into separate entities for generation, transmission and distribution. Andhra Pradesh SEB has also been split into APGENCO and APTRANSCO.
  - Other states like Haryana, Gujarat, Rajasthan and Karnataka also have plans for privatising their SEBs.
  - The CERC has been set up at the Centre and SERCs are being set up at the state level. These regulatory bodies have the power to regulate and fix tariffs.
  - The setting up of SERCs combined with World Bank aided reforms is expected to make the SEBs financially viable.

Issues Related to SEB Financing

- Several power projects are competing for limited escrow capacity available with SEBs.
- Since the SEBs are not creditworthy, lenders require an escrow since it provides a liquidity fix.
- However, power suppliers like NTPC and lenders like PFC already have liens on the receivables of SEBs.
- Some states like Gujarat have a ceiling on the amount of guarantees that can be issued by the State Government.
- In the absence of a GOI counter-guarantee, until the SEBs become creditworthy, the international banks would be willing to finance IPPs only in financially strong states like Maharashtra, Gujarat and Tamil Nadu.

Payment Security Structure for an IPP



Financial Health of Government of Tamil Nadu (GOTN)

INR mln

	Tamil Nadu		India	
	1996-97	1997-98	1996-97	1997-98
Revenue Surplus/ Deficit	(11,036)	(14,752)	(326,540)	(464,490)
Capital Surplus/ Deficit	10,910	11,219	326,540	464,490
Aggregate Receipts	153,896	166,374	2,010,070	2,320,680
Aggregate Expenditure	154,023	169,907	2,010,070	2,320,680
Revenue Receipts	119,613	130,649	1,262,790	1,339,010
Revenue Deficit/Aggregate Receipts	7.2%	8.9%	16.2%	20.0%
Revenue Receipts/Aggregate Receipts	77.7%	78.5%	62.8%	57.7%
Gross Domestic Product (GDP)	690,420	773,020	12,852,590	14,266,700
Gross Fiscal Deficit (GFD)	(24,450)	(30,679)	(667,330)	(889,370)
GFD/GDP	3.5%	4.0%	5.2%	6.2%
GFD/Aggregate Expenditure	15.9%	18.1%	33.2%	38.3%
Revenue Deficit/GFD	45.1%	48.1%	48.9%	52.2%

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Financial Health of GOTN

- **The ratio of Revenue Receipts/Aggregate Receipts for Tamil Nadu is 78.5% implying that the state has limited dependence on capital receipts, which are cost bearing liabilities.**
- **The ratio of GFD/GDP is lower for Tamil Nadu compared to the nation. Therefore, the state has better ability to meet its debt obligations.**
- **The ratio of GFD/Aggregate Expenditure is 18.1% for Tamil Nadu and is favorable compared to 38.3% for the nation.**
- **The ratio of Revenue Deficit to GFD for Tamil Nadu is 48.1% which is lower than the ratio for Government of India.**

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Cross Border Risk Mitigation

There are several instruments which can be used by international banks to mitigate cross border risk for their assets in emerging markets.

- **Selling assets**
  - ⇨ **loan syndications**
  - ⇨ **secondary sales**
  - ⇨ **asset securitization via fixed income, private and public markets**
- **Retain assets but have cross-border risk detached from commercial risks**
  - ⇨ **credit derivatives such as default swaps, transfer & convertibility swaps, credit linked notes and convertibility notes**
  - ⇨ **export credit insurance from ECAs**
  - ⇨ **private and multilateral political insurance**

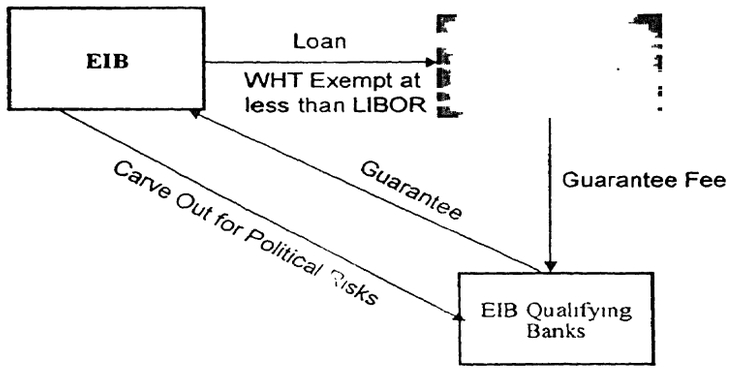
Cross Border Risk Mitigation (Contd.)

- **Retain assets but fund it through third parties**
  - ⇨ **Eurobonds issued by an entity in the risk country**
- **Retain assets but with a "comfortable" cross-border risk**
  - ⇨ **co-financing with supra nationals like World Bank and ADB**
  - ⇨ **structured finance transactions**

Credit Default Swaps

- If ABN AMRO Bank owns an asset for which it is exposed to commercial and cross border risk, it can enter into a Credit Default Swap.
- In a Credit Default Swap, a highly rated counterparty (AA or higher) agrees to pay ABN AMRO Bank a predefined amount in case of a predefined cross-border event.
- The predefined cross-border risk event is a sovereign default in the emerging market.
- The predefined settlement amount is derived from the price of a sovereign bond after the sovereign default.
- The insured is paid 100% minus the market price of the sovereign bond (the reference asset).

EIB Project Loan Structure



EIB Project Loan Structure

- EIB lends directly to large scale projects (Euros 25 mln+) for up to 50% of project costs.
- The Borrower could be a Project Company or Joint Venture with substantial European involvement (either shareholding or management influence).
- Banks like ABN AMRO issue a guarantee to EIB carved out for political risks. Therefore, EIB assumes the political risks.
- The guarantee could be issued on a stand alone basis or through a syndicate.
- Historically, EIB's lending rate to Borrowers has been less than LIBOR. In addition, the EIB Project Loan Structure is exempt from WHT.

Political Risk Insurance - MIGA

- MIGA coverage is long term (up to 15-20 years) and is non-cancelable by MIGA.
- MIGA can insure <u>new</u> cross-border investments originating in any member country and destined for any developing member country.
- MIGA currently issues up to USD 200 mln of coverage per project. Additional coverage may be mobilized through cooperation with other political risk insurers.

Political Risk Insurance - MIGA (Contd.)

- MIGA may guarantee equity investments up to 90% of the equity contribution plus 450% of the equity contribution to cover earnings on the investment.
- Regardless of the nature of the project, an investor is required to remain at risk for a minimum of 5% of any loss.
- The program also complements national and private insurance schemes through coinsurance and reinsurance arrangements.

Political Risk Insurance - ECAs

- ECAs have insurance schemes, for example Overseas Investment Insurance (ECGD), Investment Insurance (NCM), etc.
- ECAs provide standard 3-point cover. In some cases they provide extended PRI including "breach of contract" of long term offtake contracts.
- Maximum repayment period is 15 years; including disbursement period total tenor can be 20 years. OECD consensus does not apply.
- Recently ECAs have become quite active in this area.

Political Risk Insurance - Private Insurers

- PRI from private insurance companies like Lloyds, AIG, Sovereign, and Zurich has become a well established product.
- Mostly political risks are covered; sometimes comprehensive cover can be obtained on the basis of a sovereign guarantee.
- The pricing for comprehensive cover ranges between 1.5-2.0% per annum.
- However, the tenor is generally restricted to 5 years; recently tenors up to 7-8 years have been done for emerging markets.

World Bank Partial Guarantee

- The World Bank Partial Guarantee is helpful for private sector projects where the financial viability of the project hinges on contractual arrangements with a number of state entities.
- The Partial Guarantee is issued to private lenders to cover risks arising from non-performance of sovereign contractual obligations or Force Majeure.
- The instrument is called Partial Guarantee because private lenders still bear other project risks.

World Bank Partial Guarantee (Contd.)

- The instrument can guarantee against defaults in sovereign contractual obligations such as:
  - Government adherence to an agreed tariff formula
  - Delivery of inputs such as fuel supplied to an IPP
  - Payment for outputs such as power supplied by an IPP to a state utility
  - Compensation for project delays or interruptions caused by Government action or political events.

Bilateral A/B Loan Cofinancing

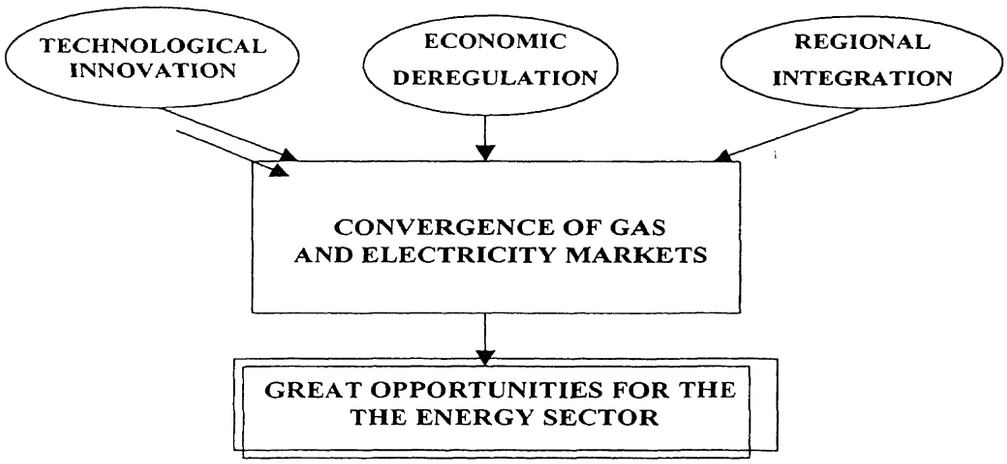
- Bilateral agencies like FMO (Netherlands Development Finance Company) and DEG (German Investment & Development Company) work only with private companies - not necessarily linked to Dutch or German investments.
- They can provide equity, mezzanine and senior debt directly as A Loans often in combination with B Loans.
- DEG has recently been emphasizing its developmental role (example: full on exposure to Brazil).
- FMO: tenor of 5-10 years; amounts between USD 10-20 mln for A Loans. In some countries, FMO can provide guarantee on local currency debt.
- DEG: tenor of loans and equity - 5-10 years; amounts between DEM 3-20 mln for A Loans.

POWER SECTOR REFORM AND PRIVATIZATION
MAY 15th - 17th, 2000
BANGALORE, INDIA

COMPETITION AND CONVERGENCE OF POWER AND NATURAL GAS MARKETS IN CHILE

ALEJANDRO JADRESIC
Former Minister of Energy of Chile

THE UNDERLYING FORCES

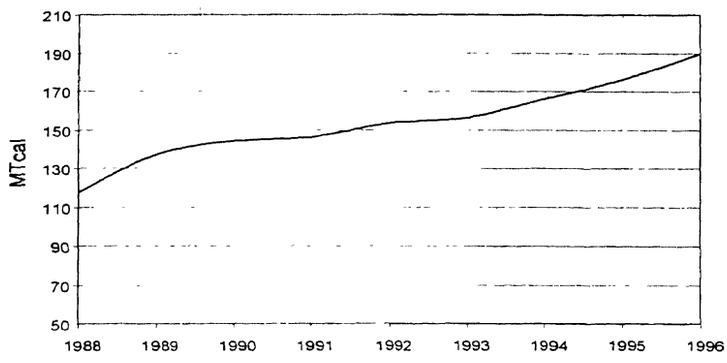


THE ENERGY CHALLENGES IN CHILE

- **How to satisfy increasing demand**
- **How to increase competition (efficiency)**
- **How to protect the environment**

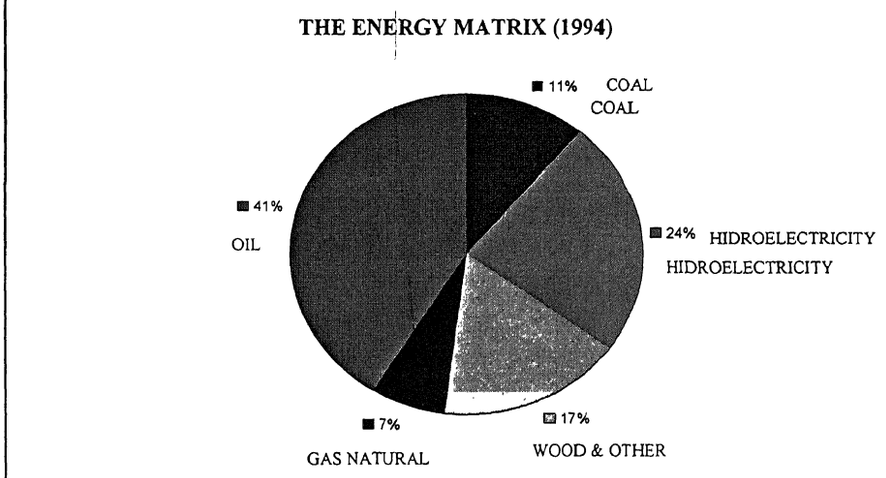
THE INITIAL SITUATION:

ENERGY CONSUMPTION



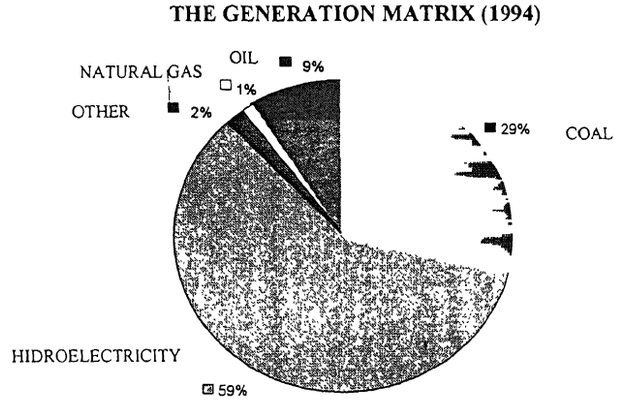
SOURCE: NATIONAL ENERGY COMMISION

THE INITIAL SITUATION (contd):



SOURCE NATIONAL ENERGY COMMISION

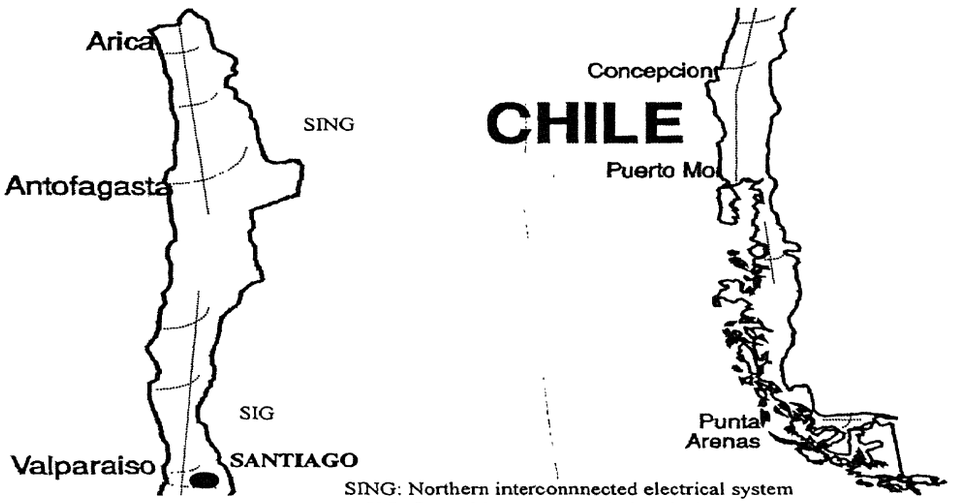
THE INITIAL SITUATION (contd.):



SOURCE NATIONAL ENERGY COMMISION

THE INITIAL SITUATION (contd):

THE CHILEAN ENERGY SYSTEM (1994)



SING: Northern interconnnected electrical system
SIC: Central interconnected electrical system

GAS INTERCONECTION WITH ARGENTINA ?

- Political, technical and economic constraints
- Failure of binational bid (1990)
- The restricted gas protocol (1991)
- The binational project

THE GAS/POWER POLICY

- Private investment in competitive environment
- Free entry to the pipeline business
- Open access to transportation of gas
- Environmental and safety regulations

- Means:
  - **Gas protocol (1995)**
  - **Concession (1995) and safety rulings (1995)**
  - **Atmospheric emission norms (1994)**
  - **Enviromental impact assessment studies (1994)**

THE TRANSGAS - GASANDES DISPUTE



GASANDES PIPELINE

- Partners:Novacorp,Gener, Gasco, others.
- Investment: US$325 millions.

TRANSGAS PIPELINE

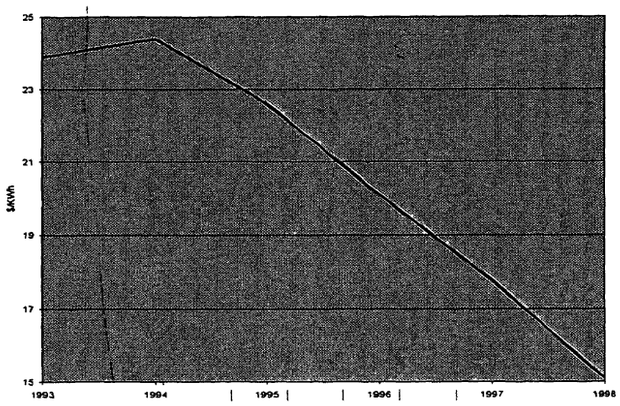
- Partners: Enersis, Tenneco, British Gas, YPF, ENAP, others.
- Investment: US$600 millions.

THE TRANSGAS - GASANDES OUTCOME

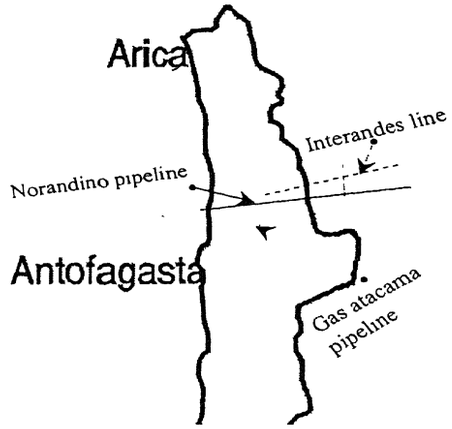
INVESTMENT		
YEAR	PROYECT	INVESTMENT
Pipelines:		
1996-97	Gasandes	325
1997-98	Electrogas	88
Distribution grids:		
1996-99	Metrogas	400
1997-98	Energas	44
1997-98	GasValpo	42
Combined cycle plants:		
1997	Nueva Renca	215
1998	Nehuenco	170
1998	San Isidro	180
	TOTAL :	1.464

SOURCE NATIONAL ENERGY COMMISION

ELECTRICITY PRICES



THE NORTHERN CHILE DISPUTE



GAS ATACAMA PIPELINE

- Partners: Endesa and CMS.
- Investment: US$ 350 millions

NORANDINO PIPELINE

- Partners: Tractebel, Southern Electric.
- Investment: US$ 330 millions

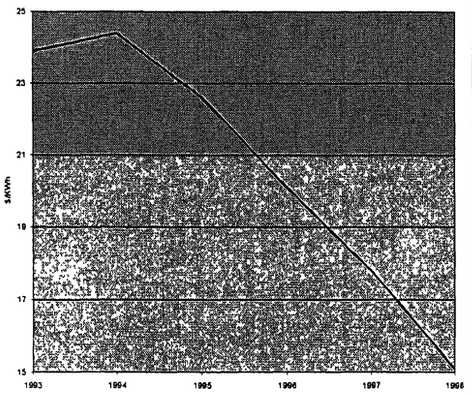
INTERANDES LINE

- Partners: GENER.
- Investment: US$ 160 millions

NORTHERN CHILE: THR OUTCOME

INVESTMENT		
YEAR	PROYECT	US$ million
Pipelines :		
1998-99	Gas Atacama	350
1998-99	Nor Andino	330
Transmission line :		
1998-99	Inter Andes	160
Combined cycle plants :		
1999	NOPEL	150
1999	NOPEL	150
1999	Electro Andina	100
1999	Inter Andes	100
1999	Inter Andes	100
1999	Inter Andes	100
2000	Electro Andina	100
2000	Edelnor	100
	TOTAL :	1.740

ELECTRICITY PRICES



SOURCE NATIONAL ENERGY COMMISION

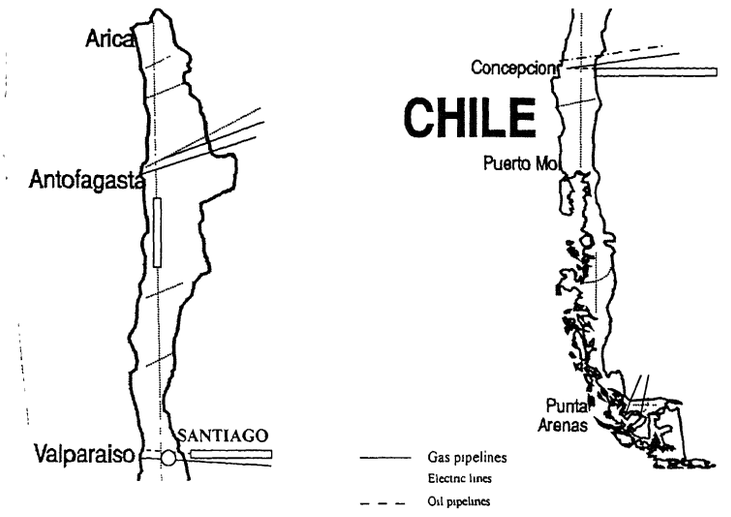
GAS PIPELINE PROJECTS IN CHILE

(figures in US$ millions)

PIPELINES BETWEEN ARGENTINA AND CHILE		
YEAR	PROJECT	INVESTMENT
1996	Magallanes	30
1996-1997	Gas Andes	325
1997	Electrogas extension	88
1998	Magallanes 3rd loap	30
1998	Gas Atacama	350
1998	Nor Andino	330
1998-1999	Gasoducto del Pacífico	350
	Total	**1.503**
DISTRIBUTION NETWORKS		
1996-2000	Metrogas	400
1998-2000	Energas	44
1998-2000	GasValpo	42
1999-2000	GasSur	46
	Total	**532**
POWER PLANTS AND END USE EQUIPMENT		
	C C Power plants SIC	565
	C C Power plants SING	900
	Methanol plants	400
	Desalination plants	65
	Total	**1.930**
	Total investment	*3 965*

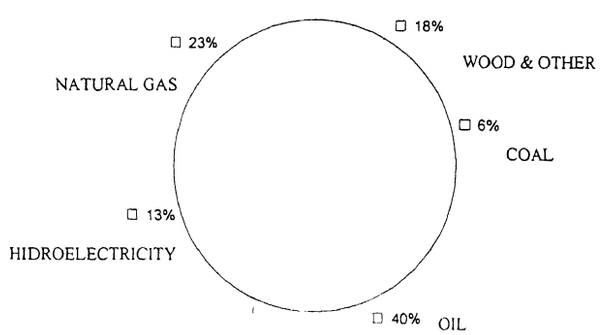
SOURCE NATIONAL ENERGY COMMISION

THE CHILEAN ENERGY SYSTEM : 2000



CHILEAN ENERGY SECTOR : IN THE FUTURE (2005)

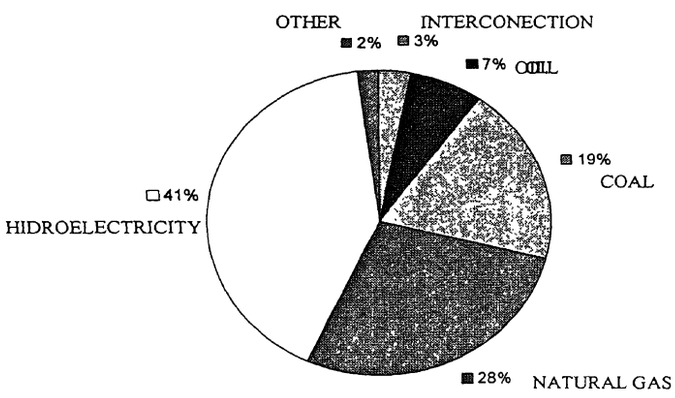
THE ENERGY MATRIX



SOURCE NATIONAL ENERGY COMMISION

CHILEAN ENERGY SECTOR : IN THE FUTURE (2005)

THE GENERATION MATRIX



SOURCE NATIONAL ENERGY COMMISION

CONCLUSIONS

- Great opportunities arising from convergence of natural gas and power markets
- Competition and private investment can help
- Political leadership is required

Pricing in a Competitive Electricity Pool Market

Martín A. Rodríguez Pardina

March 2000

Risk and Tariffs in Generation

- Independent Power Producers
  - Power Purchase Agreements
- Wholesale Contracts
  - Contracts and dispatch
- Pool arrangements
  - Contracts for difference
  - Pool Governance

Independent Power Producer

- Most common under Model 2 (single agency)
- Monopsonistic market structure requires a long term contract to prevent opportunistic behavior by the buyer
- Competitive allocation of contracts allows for some competition for the market

IPP Risks

- IPP contracts (Power Purchase Agreement - PPA) have to allocate and cover several risks:
  - Price Risk — Energy Price
  - Quantity Risk — Availability Payment
  - Costs Risk — Pass-through

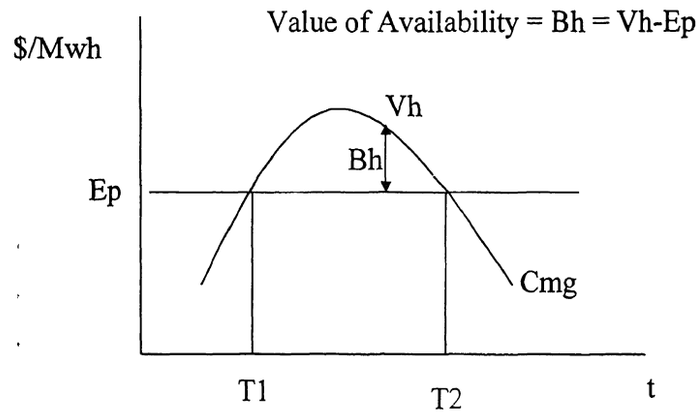
Energy Price (Ep)

- Early contracts relied heavily on energy prices, setting Ep equal to total average cost at a predetermined level of output
  - Energy price key determinant of dispatch
    - Energy Price > Marginal Cost ==> little incentives for efficient dispatch
- Efficiency requires: Ep = Variable Costs

Availability payments

- Objective:
  - Provide extra revenue to the generator, to cover the capital costs not covered by the energy price
  - Provide incentives for generators to be available at times when the system needs generation capacity
- Elements;
  - Agreed level of availability (MW- hours per year)
  - Fixed Annual Payment
  - Bonuses and penalties

Value of Availability



Availability Testing

- Ad-hoc procedures.
- Random tests for non running plants
- Incentives
  - Penalties for failure to report unavailability

Cost Risk

- An optimal allocation of risks might imply the need to Path-through some costs to final users. Cost which are:
  - Volatile; out of control of the firm and a sizable part of total costs.
- Many PPA have a fuel cost adjustment
- Alternatives:
  - Fuel Price Index
  - Generators own fuel costs

Wholesale Contracts

- Optimal Dispatch
- Wholesale Market Price
- Bulk Power Contracts
- Contracts and dispatch

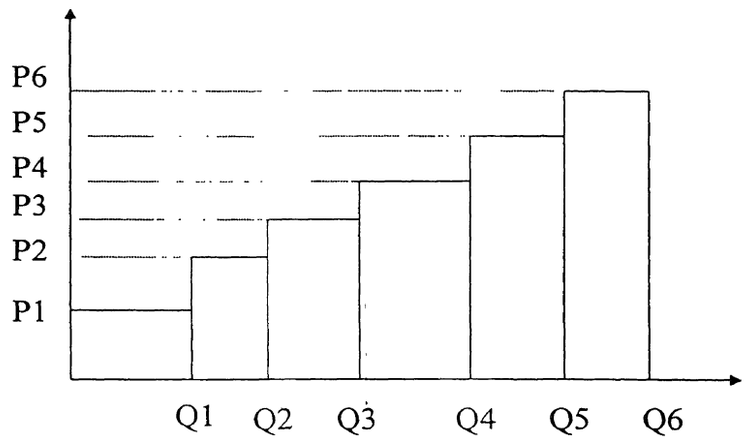
Optimal Dispatch

- Thermal systems
  - One period problem
  - Minimize costs over the following period subject to
    - meeting demand in all nodes
    - generation capacity
    - transmission constrains

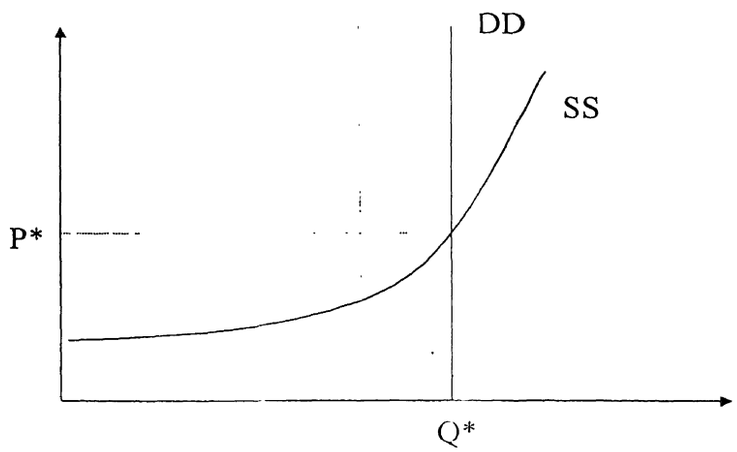
Optimal Dispatch

- Hydro-thermal systems
  - Intertemporal problem
  - Minimize costs over the n following periods (n storage capacity of largest hydro site) subject to
    - meeting demand in all nodes
    - transmission constrains
    - hydro site constraints

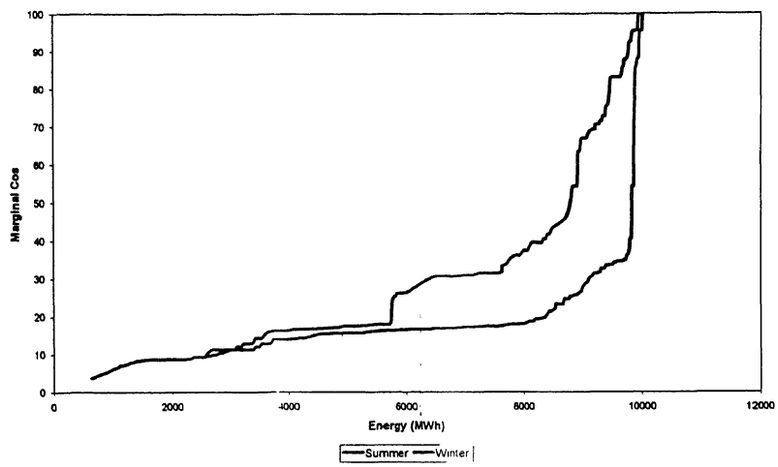
Wholesale Market Price



Wholesale Market Price



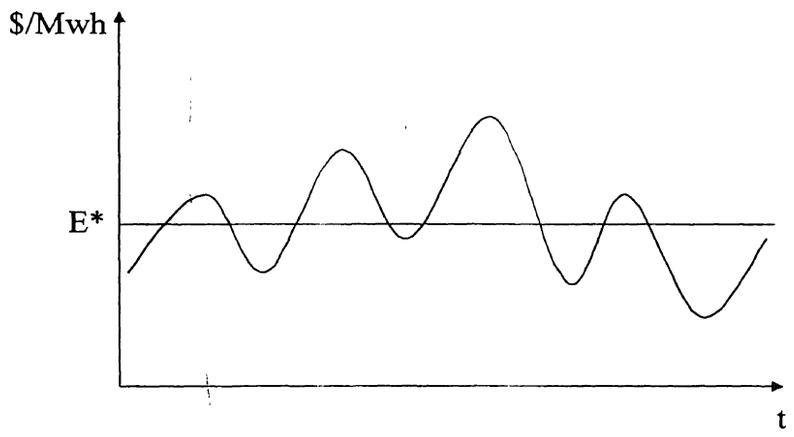
Supply Curve 1996 - Argentina



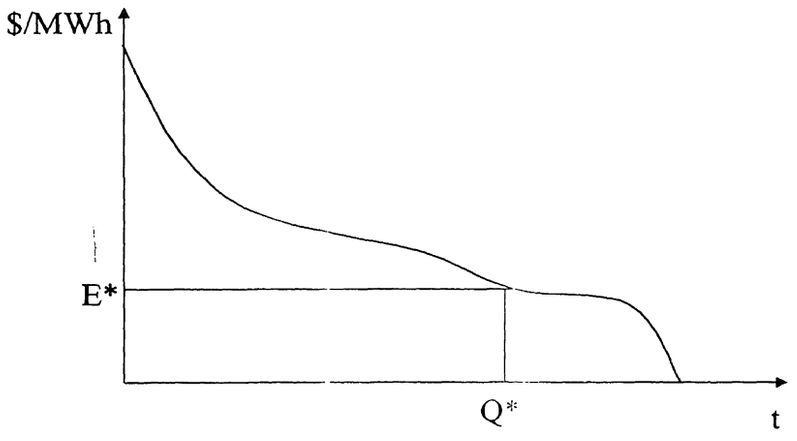
Bulk Power Contracts

- Risks to be allocated
  - Price Risk
  - Quantity Risk
  - Fuel Price Risk
  - Availability Risk

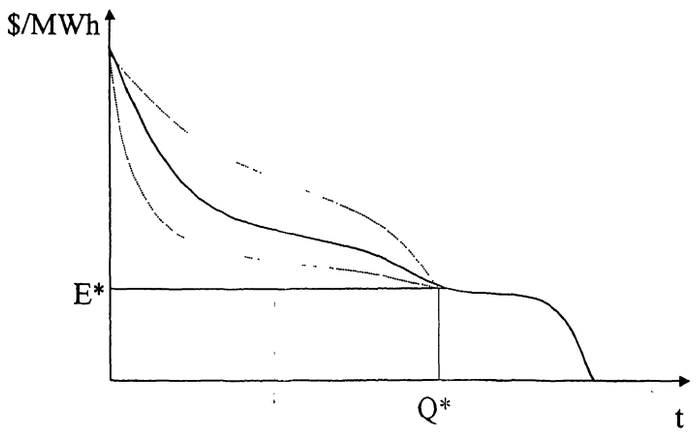
Wholesale Market Prices



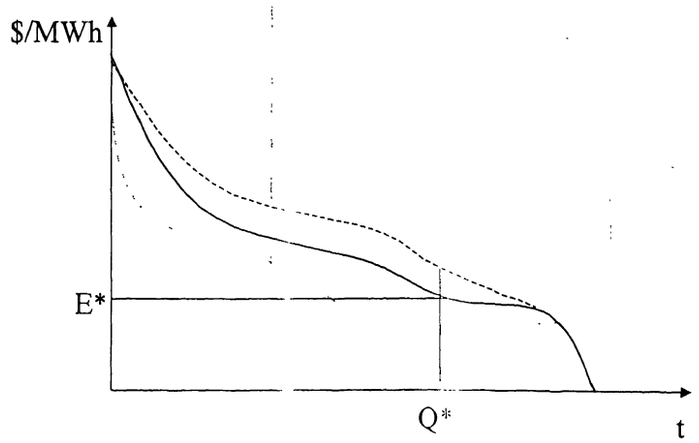
Market Price Duration Curve



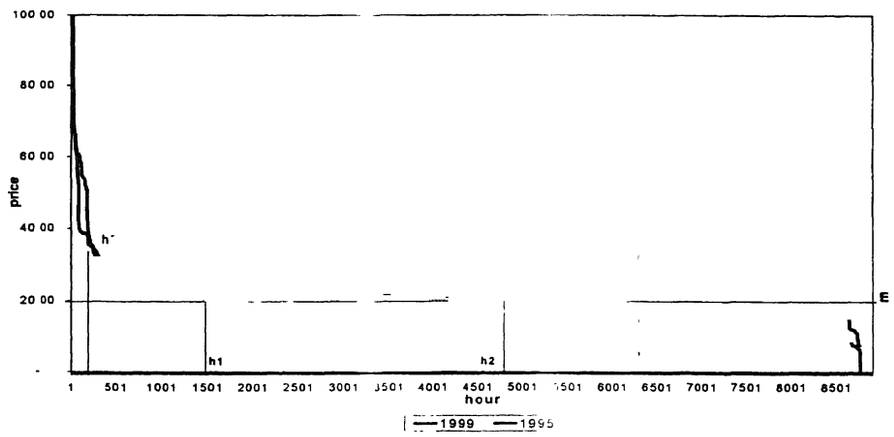
Price Risk



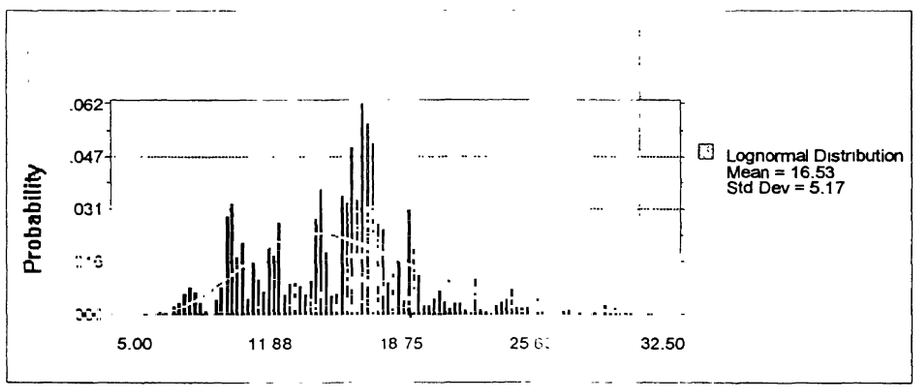
Quantity Risk



Price Duration Curve – Argentina



Wholesale Price Distribution Argentina



Contracts and Dispatch

- Contracts considered
  - Differences between contracts and actual flows are traded at spot prices.
    - Norway, Sweden
- Contracts not considered
  - All trade is carried out at the spot price and contracts are settled outside the pool as purely financial (risk hedging) instruments.
  - England and Wales, Argentina, Chile

Spot Markets

- The UK Pool
- Contracts for differences
- Pool Governance

The England and Wales Pool

- A day in advance of trading, generators submit price bids and availability for each genset for each half hour during the following day
- An Unconstrained Schedule (U-S) is produced which minimizes the cost of meeting forecast demand
- The bid of the last genset in the U-S is the "System Marginal Price" (SMP)

The England and Wales Pool

- Pool Purchase Price (PPP) is given by the SMP plus Value of Loss Load times Loss of Load Probability **(PPP=(1-LOLP)xSMP+LOLPxVOLL)**
- Genset capacity not needed is paid an availability bonus
- The Dispatch instructs all generators as to when and how much to generate

The England and Wales Pool

- Transmission constraints
  - Generators in the U-S not dispatched for transmission constrains (constrained-off) are paid lost profit (PPP-Own Bid)
  - Generators not in the U-S needed to generate due to transmission constrains (constrained-on) are paid their Own Bid

The England and Wales Pool

- Pool Selling Price (PSP) is given by the PPP plus cost of constrained on and constrained off generation plus ancillary services (known as Uplift)
- For each energy unit consumed during each half hour users pay the PSP

Long Term Signals

- Pool Purchase Price

  PPP = (1-LOLP) SMP + LOLP VOLL
- **LOLP** probability that demand will exceed capacity
- **VOLL** reserve value of energy
- LOLP -> 0 enough capacity PPP = SMP
- LOLP -> 1 need for capacity PPP = VOLL

Contracts for Differences

Payment matrix:
Contract for 100 units at £30 per unit

Pool Price	Generator	Buyer
> £30 : 40		
Pool	+£4000 (=40x100)	- £4000 (=40x100)
Contract	- £1000 (=[30-40]x100)	+£1000 (=[40-30]x100)
Total	**+£3000**	**- £3000**
< £30 : 20		
Pool	+£2000 (=20x100)	- £2000 (=20x100)
Contract	+£1000 (=[30-20]x100)	- £1000 (=[20-30]x100)
Total	**+£3000**	**- £3000**

Pool Governance

- Pool Agreement
  - England and Wales. Conflict of interests among participants ensures a "fair" outcome.
  - Qualified majority needed to produce changes. Difficult to obtain consensus. System becomes rigid
- Administrative Orders
  - Argentina. The Minister issues rules which have to be implemented by the market administrator
  - Rules can become to volatile. Too much discretion can lead to arbitrary behavior. Increases risk

SESSION 6
FINANCING THROUGH LOCAL BOND MARKET

CURRICULUM VITAE

Dr. R.H. Patil has assumed office as the first Managing Director of the National Stock Exchange of India Limited (NSEIL) on November 17, 1993.

After a two-year stint on the faculty of Post-Graduate Department of Economics in the University of Bombay, Dr. Patil joined Reserve Bank of India in 1968 in the erstwhile Economic Department. Later, in 1975, he joined the Industrial Development Bank of India (IDBI) which is one of the largest Development Banks in the world. He was the senior Executive Director in charge of its loan operations and treasury functions when he left IDBI to take up the position as Chief Executive of NSEIL.

Dr. Patil has been associated closely, during his career, with the financial sector in various capacities, and particularly with the capital market. He was associated with various expert Committees including the High Powered Committee on Stock Exchange Reforms, the Committee on Secondary Market for Debentures and the Committee on Trading in PSU Bonds and Units of Mutual Funds. As a consultant to the Asian Development Bank he prepared a report on the Financial Sector in India for ADB's use. During May 1997 he completed a project on capital market of Bangladesh for ADB.

He has been associated with the establishment of National Stock Exchange of India Ltd., Stock Holding Corporation of India Ltd. (SHCIL), and Credit Analysis and Research Ltd. (CARE).

Currently, Dr. Patil is also Chairman of National Securities Clearing Corporation Ltd. and NSE.IT Ltd. and in the boards of National Securities Depository Ltd., Stock Holding Corporation of India Ltd., Credit Analysis and Research Ltd. and India Index Services and Products Ltd. He is also member of the Governing Council of UTI Institute of Capital Markets. Dr. Patil is a member of RBI's Standing Committee on Money Market and Government Securities Market and also a member of RBI's National Payments Council. He is also a member of the Board of Trustees of ANZ Trustee Company Pvt.Ltd.

Role of Debt Market in Resource Mobilisation for Infrastructure projects

A Presentation by

Dr. R H Patil

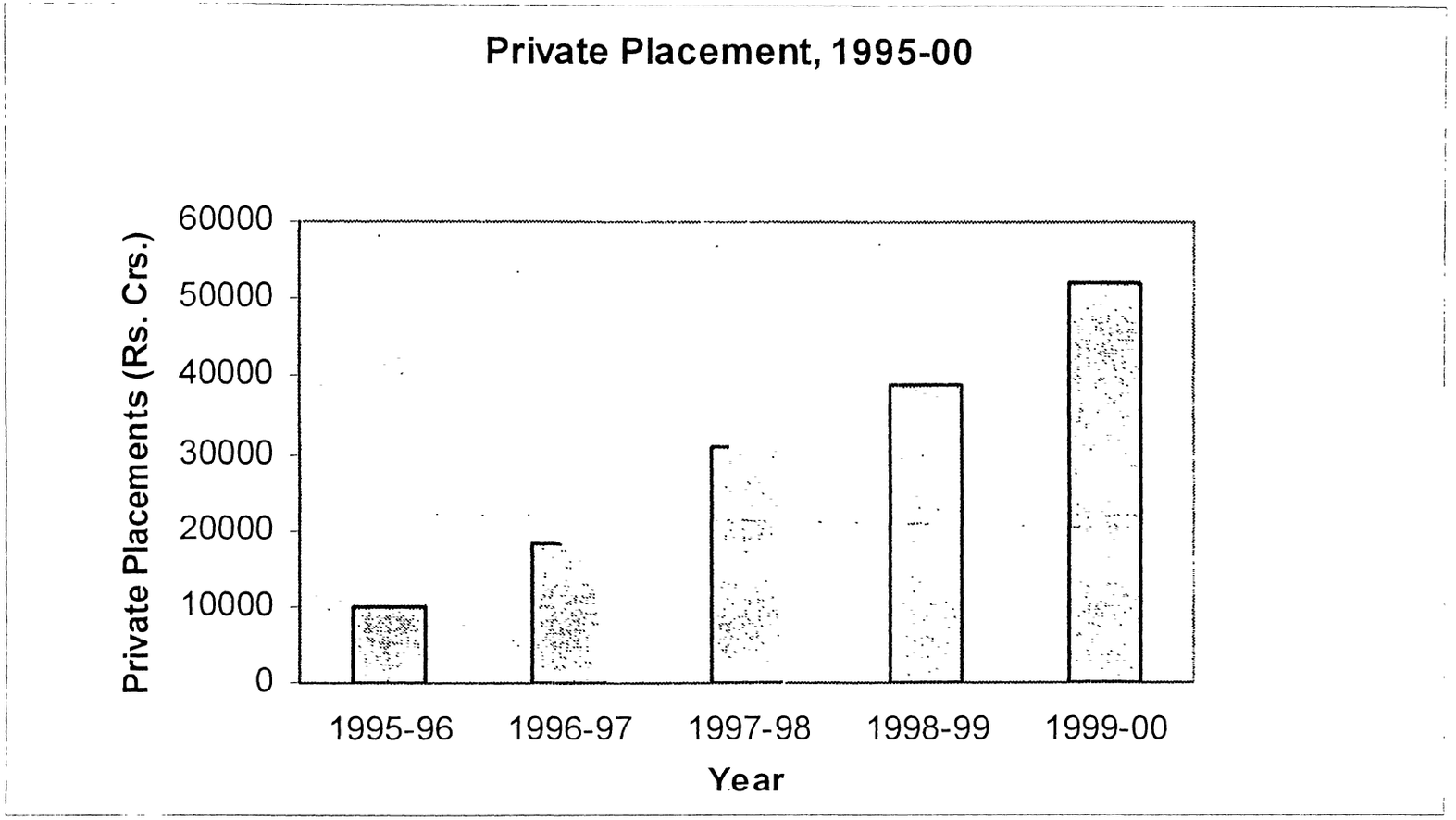
- Recent trends:
- Drying up of budgetary support of public sector projects
- Increase in size of the projects
- Declining intermediation - project debt funds no longer fully financed by FIs
- Funds to be raised from the market directly

- **Responsiveness of financial markets to provide long term funds critical if the trend toward private investment in infrastructure to continue.**
- **Ability to place primary paper directly linked to secondary market activity.**
- ***Interest rate deregulation has led* to market determined interest rates.**

- Emerging market for medium and long term securities
- Debt Market in India characterised by few large investors
- Secondary market activity fragmented and pre-negotiated among traders.
- Better price dissemination in the market over the years though not price discovery

- **Indian bond market has the potential of being among the larger bond markets in the world.**
- **There has been overwhelming support to bond issues of Financial Institutions.**
- **Deepening and widening of the market in debt instruments through financial innovations.**

- Telecom companies, independent power producers, industrial park developers, road developers are potential bond issuers.
- Share of private investment in infrastructure projected at 3.5% of GDP by 2005 - 06 and in absolute terms at Rs.800 billion.
- Net capital inflows not expected to finance more than 10-12% of the requirements.


Private Placement, 1995-00
Private Placements (Rs. Crs.)
60000
50000
40000
30000
20000
10000
0
1995-96
1996-97
1997-98
1998-99
1999-00
Year

Issuer-wise Distribution of Private Placement of Debt (Rs. Crs.)

	1998-99		April - Dec. 1999	
	Issue Amount	%	Issue Amount	%
FIs / Banks	18614	48	8923	25
State FIs	314	0.8	1289	4
PSUs	3110	8	5575	15
State Undertakings	9479	24.5	11256	31
Private Sector	7231	18.7	9263	25
Total	38748	100	36307	100

Borrowings of Central Govt. and Wtd. Avg. Interest Rates			
Fiscal Year	Central Government		
	Gross Amount	Interest Rate (%)	Range (%)
1980-81	2871	7.03	5.98-7.50
1990-91	8989	11.41	10.50-11.50
1991-92	8919	11.78	10.50-12.50
1992-93	13885	12.46	12.00-12.75
1993-94	50388	12.63	12.00-13.40
1994-95	38108	11.91	11.00-12.71
1995-96	40509	13.75	13.23-14.00
1996-97	36152	13.69	13.40-13.85
1997-98	59637	12.01	10.85-13.05
1998-99	93953	11.86	11.10-12.60

Market Capitalisation of WDM Segment				
Security	At the end of March 1999		At the end of March 2000	
	Market Cap (Rs. Crs.)	% to Total	Market Cap (Rs. Crs.)	% to Total
Govt. Security	260002	63.19	319865	64.75
PSU Bonds	34994	8.5	39357	7.97
State Loans	30516	7.42	39477	7.99
T-Bills	11292	2.74	15345	3.11
Other	74666	18.15	79989	16.18
Total	411470	100	494033	100

Security-wise Distribution of Turnover (Rs. in Crs.)				
Securities	1998-99		1999-2000	
	Turnover	% of Turnover	Turnover	% of Turnover
G-secs	84574	80.2	282880	92.99
PSU Bonds	1729	1.7	1528	0.5
Inst. Bonds	3278	3.1	3345	1.1
T-Bills	10706	10.2	11007	3.62
Bank Bonds & CDs	861	0.8	805	0.26
Corporate Bonds & CPs	4228	4	4615	1.52
Others	92	0.1	36	0.01
Total	105469	100	304216	100

PANEL DISCUSSION
"FINANCING THROUGH LOCAL BOND MARKET"

"MUTUAL FUNDS' APPETITE

FOR

POWER BONDS"

Unit Trust of India

Investors' Expectation from Mutual Funds

- Investment vehicle for small and retail investors
- Return Expectation of MF investors ?
- MF Investors' Preference
- Banks
- Asset Class Allocation

Unit Trust of India

A Quick Look at MF Cake in India

	FY99
Financial Savings of Household Sector (Rs. Billion)	2078
% in Mutual Funds	0.30%

(Source. Economic Survey 1999-2000, MFOI)

Comparison with MF's share in U.S.

- Mutual Fund industry has more than 6% of total financial savings of household sector

- Approximate $ 6.8 trillion was invested in Mutual Funds (End'99) in over 7791 MFs.

(Source : Investment Company Institute)

A Quick Look at MF Cake in India

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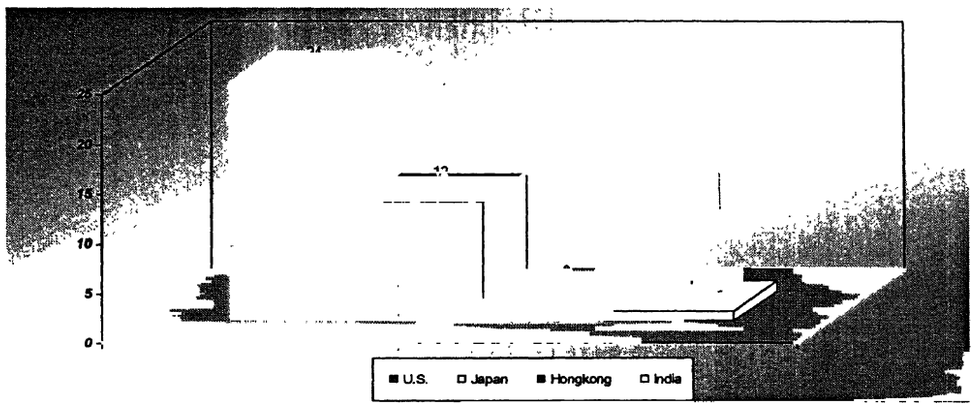
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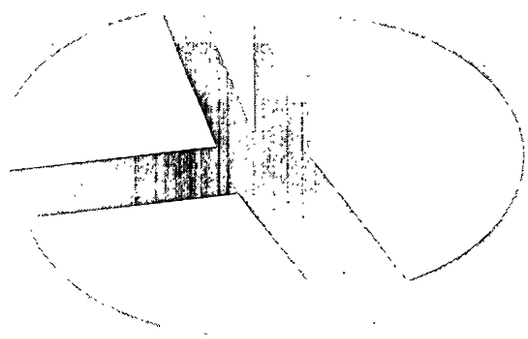
Population Penetration of MFs



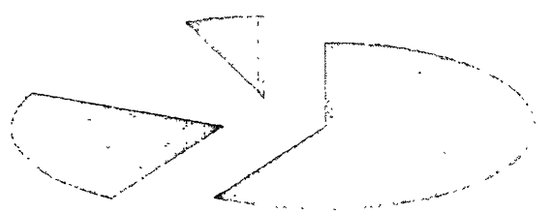
MF Sales in 1999-2000

- Record gross sales : Rs.597.48 Bn.
- Assets under management crossed Rs.1130 Bn.
- Of the above Equity was 30%, Debt 42%, Balanced Funds 24%, MMMFs 4%

Cumulative Assets under MF Management

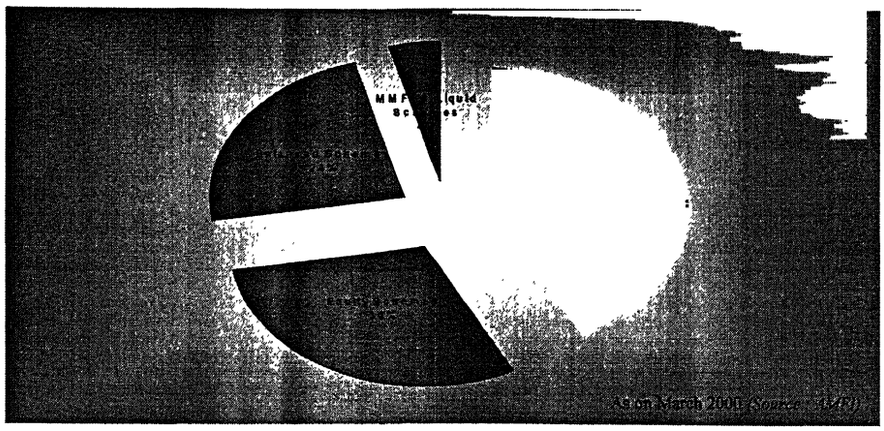


Comparative Investment Profile of U.S.- MFs



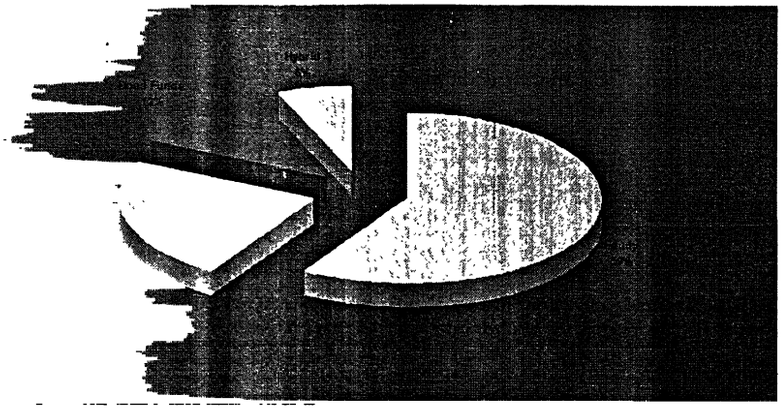
Sorce: Investment Company Institute

Cumulative Assets under MF Management



7

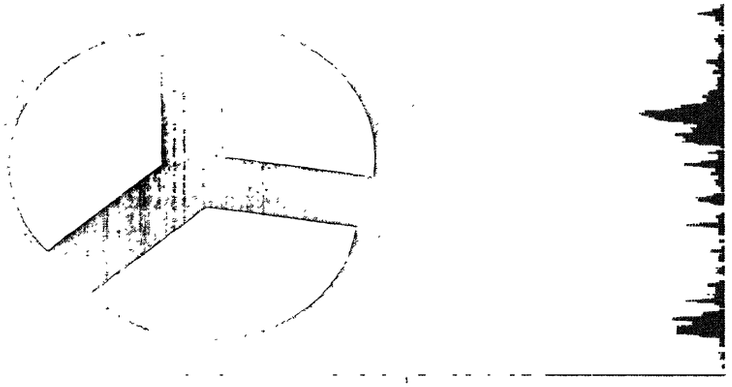
Comparative Investment Profile of U.S.- MFs



8

Sorce Investment Company Institute

Indian MF's Skewness in Fresh Mobilisation



Source: AMFI AS on March 2000

Infrastructure As an Asset Class for MFs

- Development of Investment Rationale
- What is the Basic premise?
- Underlying Assumption
- Exceptions ?

Infrastructure Debt Instruments

- Backbone of Infrastructure Financing
- World Over - Significant leverage seen
- What is Indian Scenario?

Risk - Return Profile - Infrastructure Project Debt

- Higher risk
- Illiquidity - Secondary Market not available
- Returns do not mirror the risk profile change with project completion

Structured Debt/Bond Issue - Characteristics

- Innovations Seen in Private Placement market
  - Use of Put/call Options
  - Escrow
  - State Guarantees
  - Bond Issuers Profile
- Only short term solutions ?

INTERNATIONAL EXAMPLE - U.S.MUTUAL FUNDS

- Number and Diversity of Mutual Funds
- Bond funds Segments itself quite diversified

- No.of Bond Mutual Funds - 2170
- Assets under management - $ 635.60 Bn.

TAXABLE BOND FUNDS ILLUSTRATION

- Corporate Bond Funds
- High-yield Funds
- World Bond Funds
- Government Bond Funds
- Strategic Income Funds
- Sectoral Funds

Typical Utilities Income Fund (Fidelity Utility Income Fund)

Assets : US$ 1378 million

Investment Policy : Minimum 65% in public utility companies

Investment Restriction : not >25% in one sector,
: not > 10% of any issue/issuer

Rating : Minimum A

Fund's Return (Total)	Sectoral holding
1 Year - 24%	Utilities - 44%
3 years - 17.5%	Energy - 5%
5 years - 15%	Financials/Cyclicals - 1%

A Typical High Yield Corporate Bond Funds (Fidelity Capital Income Fund)

Assets : US $ 2.5 billion

Investment Policy : Any type/quality of debt/equity, focussing more on lower rated debt securities

Investment Restriction : >75% in bonds, interest bearing debt with particular emphasis on lower debt securities

Fund's Return (Total)

1 Year - 24%, 3 years - 22%

5 years - 13.2%, 10 years - 14%

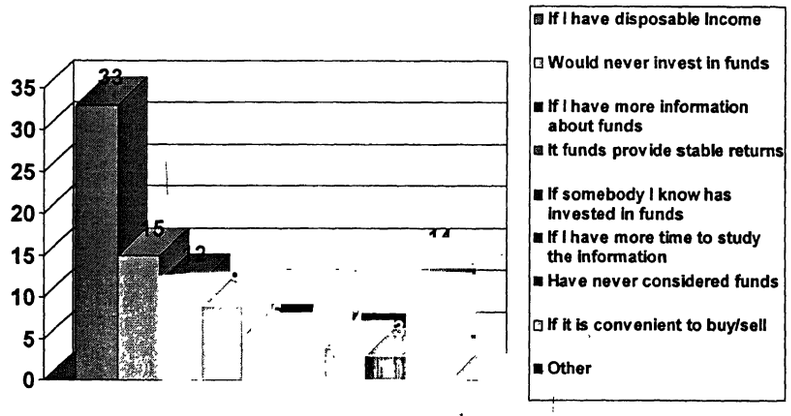
Portfolio

Cost - 8.5%, Stocks - 0%

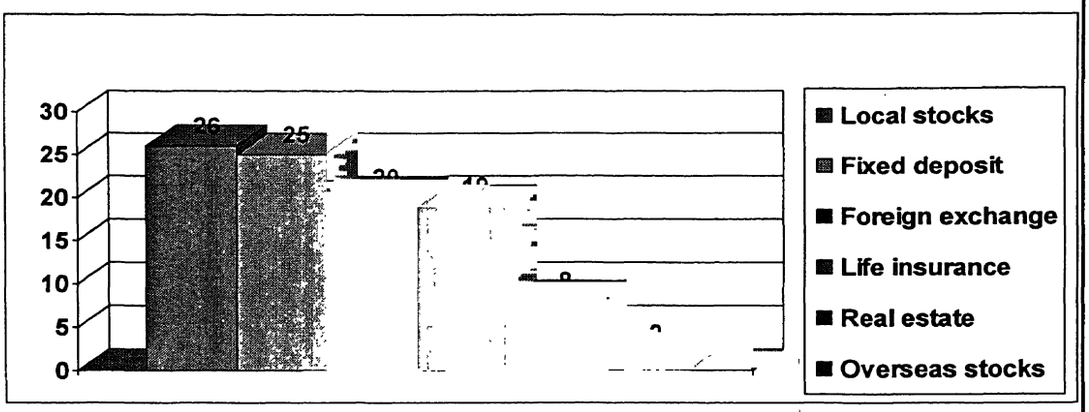
Bonds - 78%, Preference- 10%

Convertible & others - 4%

Asian Investor's Interest in MFs Non-Investor Profile

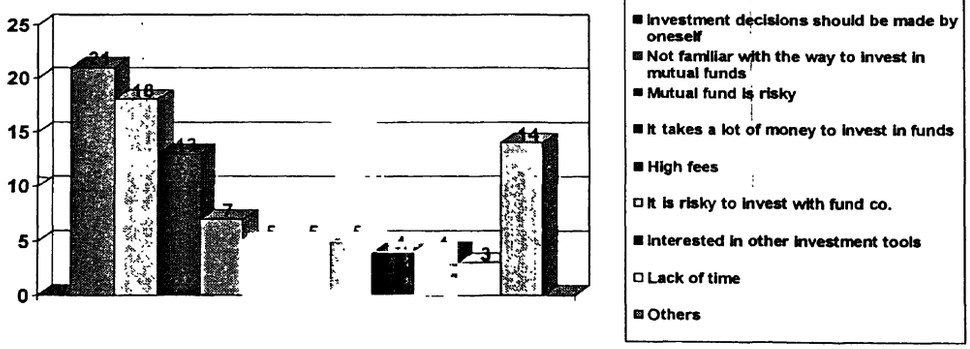


Non-Investor Profile



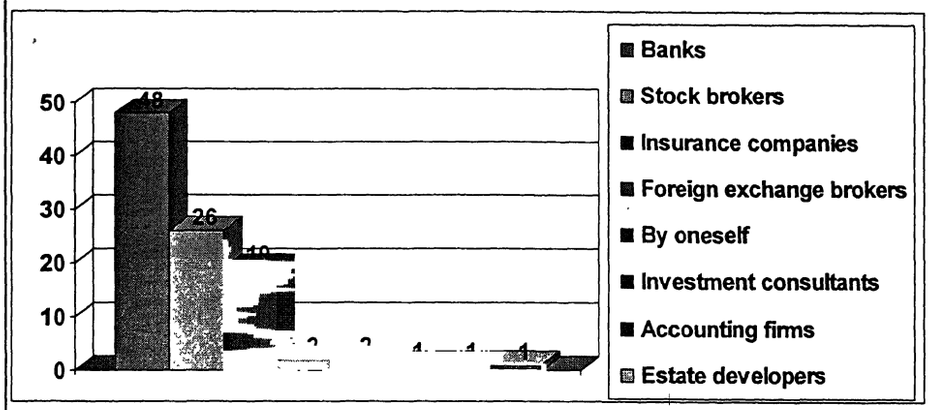
Unit Trust of India

Non-Investor Profile



Unit Trust of India

Non-Investor Profile



Power Bonds : Not an Issuers Market

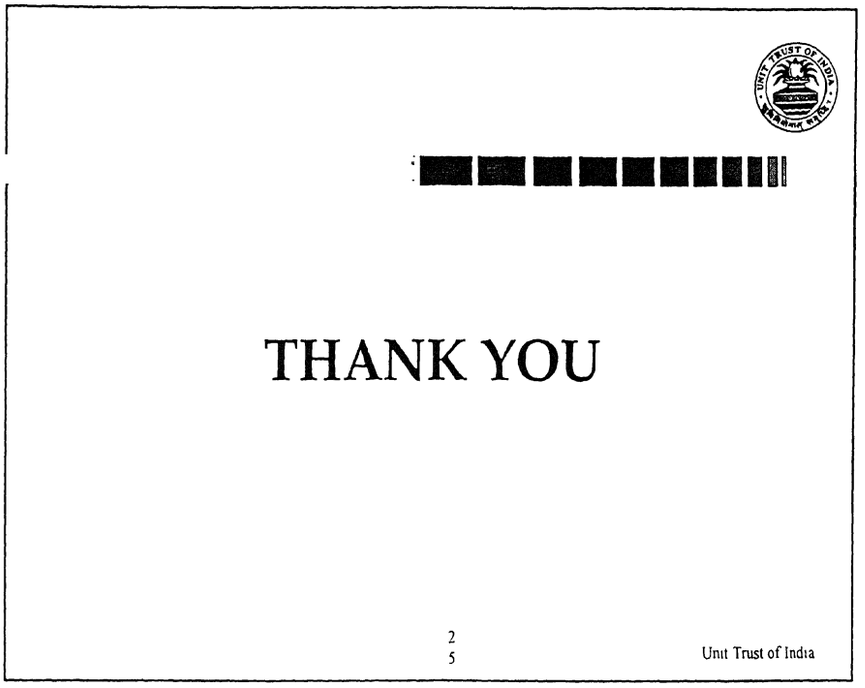
- Importance of Domestic Debt
  - Lack of Natural Hedge; Long Maturity
- Large Debt Requirement
  - (200 000 MW fresh capex in GTD, over 5 yrs)
- The Mutual Funds appetite is therefore quite important

Power Bond : Mutual Fund Concerns

- Attractiveness of Power Bonds?
- Credit risk
- Tenor mismatch
- Lack of Secondary market
- Mutual Funds are strong Secondary Market Players

Immediate Challenge

- In designing and using easily Transferable Financial Instruments
- Developing Alternative Sets of long term, medium-term and short-term Investors
- No substitute for commercial and financial viability


THANK YOU
25
Unit Trust of India

Ronald Dorlas

Mr. Dorlas, Director, Utilities & Energy Group, Global Investment Banking, is responsible for Deutsche Bank's investment banking activities in the Utility & Energy sector in Asia. He has seven years of investment banking and project finance experience in Asia. Prior to joining Deutsche Bank, he had seven years experience in the oil & gas and petrochemical industry with Royal Dutch/Shell where he was involved in projects in Europe and Asia. Recent experience includes advising on privatisations, restructurings, mergers & acquisitions and project financings in China, India, Indonesia, Malaysia, Thailand, South Korea and Vietnam.

Financing alternatives for power projects in Asia

16 May 2000

Contents

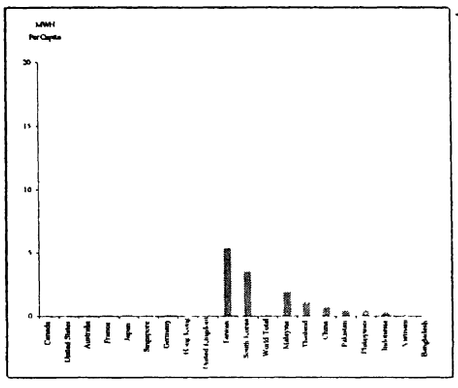
Section

1. **Asian power sector overview**
2. **Analysis of financing alternatives by country**

Section 1

Asian power sector overview

Regional overview



Market background

- 50% of the world's growth in installed generating capacity will come in Asia
- Asia has amongst the lowest per capita electricity consumption of any region in the world, but amongst the highest rates of GDP growth
- Without increasing electricity infrastructure, GDP growth will be constrained
- Increasing levels of private sector involvement in the power sector are being seen throughout Asia

IPPs in Asia encounter unique challenges

- A higher level of political risk than in a fully developed economy
- These risks encompass many facets of the operating environment
  - political conditions, economic structures, legal systems, culture, business practices, regulatory structures and other unpredictable circumstances not found in mature markets
- Complexity of power purchase agreements
- (Lack of) creditworthiness of offtakers and other contractual counterparties

Section 2

Analysis of financing alternatives by country

China



Market overview

- Total installed capacity for China is 294 GW in 1999. Capacity growth from 2000-2005 is expected to be 5% p.a. or 15 GW p.a. Installed capacity is forecasted to reach above 350 GW by 2005 and 430 GW by 2010
- The industry's regulatory framework was restructured in the 1990's with the objectives of separating regulatory functions from commercial operations. The Ministry of Electric Power, which historically controlled the power industry, was abolished in 1998
- The State Power Corporation was formed as independent operator, and regulatory functions transferred to the State Economic and Trade Commission and the State Development and Planning Commission

China

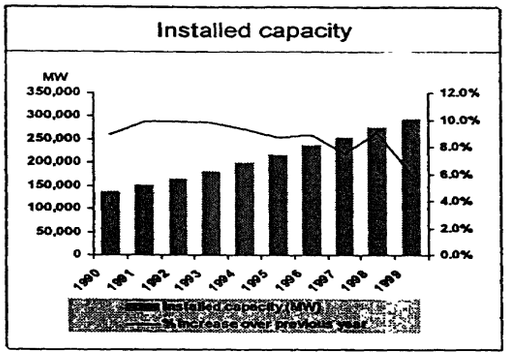


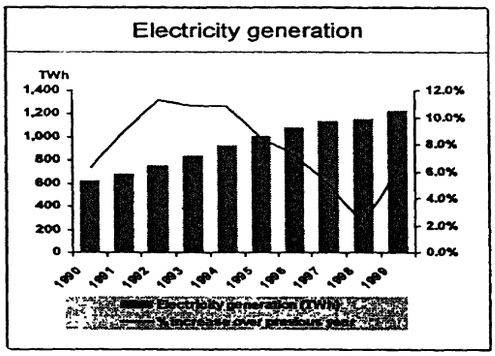
Market overview

- The Central Government has introduced new regulations governing foreign investment and project financing including the Interim Measures for the Administration of Project Finance from Overseas which was issued by SPC and SAFE on 16 April 1997
- The BOT structure has not led to a large number of successful IPPs
  - Laibin 'B' Power Project, seen as the template for BOT plants in China, was financed in 1997
  - Changsha Power BOT, the second pilot BOT, bidded in 1997 yet to reach financial close
- Legislation for private infrastructure finance (BOT law) has been long overdue

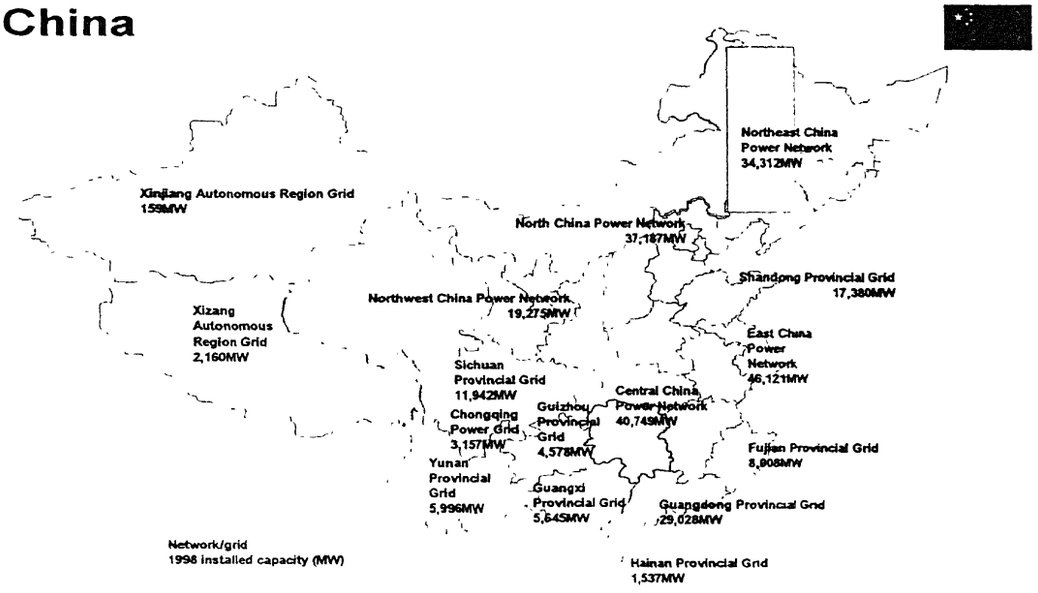
China

- Central Government reluctant to provide guarantees for obligations of Government entities and/or support on project risks
- There is a strong movement to encourage developers to use domestic equipment suppliers





China



China



Development and financing issues

- Approvals process is torturous. Annual approval of tariffs presents particular financing problems
- Foreign exchange availability is receding as a lenders issue
- Creditworthness/bankability of contract counterparties key to financing
- Negotiation of bankable project contracts requires considerable time and education
- Enforceability of contracts still an issue, particularly for banks/ECAs
- Sponsors are being encouraged to use domestic equipment. Domestic equipment is generally financeable
- Domestic equipment supply requires reliance on private sector finance sources
- Partial domestic finance has become a viable option
- Limited appetite for country risk amongst international commercial banks
- Currently no capital market appetite for China project financings

China



- Government approval process
  - Municipal, Provincial and Central Approvals
  - State Development and Planning Commission (SDPC) approval for projects over US$30 million
  - State Council approval for projects over US$100 million
  - State Administration of Foreign Exchange ("SAFE") approval for foreign exchange over life of project
  - annual approval of tariffs
- Foreign exchange availability
  - SAFE and SPC approval
  - onshore comfort from ITICs or banks
  - issue becoming less important to lenders
- Creditworthiness of Chinese parties
  - limited number of bankable entities
  - restrictions on guarantees
  - rigorous due diligence required
- Standard of documentation
  - Chinese parties resist "legalistic" approach
  - contracts viewed as flexible documents
- Enforceability of legal documents
  - Chinese law strongly preferred by counterparties
  - resistance to offshore arbitration

China

Debt financing options

Debt market options	Availability	Tenor
Multilaterals	Moderate - High	10-20 years
Export Credit Agencies	Moderate	14 years*
International Commercial Banks	Moderate	12 years
Domestic Commercial and State Policy Banks	High	12 years
Domestic Capital Market	Low	n/a
International Private Placement	Currently very low	n/a
International Capital Markets	Currently very low	n/a

* Two options exist under the OECD consensus:
1. Total flexibility on grace period, repayment profile and final maturity, subject to a max. average life of 5.25 years after commissioning (equal to 20 equal semi-annual payments);
2. Max. grace period of 2 years after commissioning, flexible repayment profile and max. final maturity of 14 years after commissioning, subject to a max. average life of 7.25 years after commissioning (equal to 26 equal semi-annual payments)

India

Market overview

- Country plagued by serious shortage of power supply
- Transmission and distribution losses unusually high (often exceeding 20%)
- Weak financial position of State Electricity Boards (SEB) has created obstacles for increased foreign investment. SEB finances have been steadily deteriorating
- Commercially viable tariffs needed but are politically difficult to implement
- Some progress in tariff reforms with establishment of regulatory commissions
- Attempts at developing alternate security structures such as Escrow Accounts largely unsuccesful

India



Development and financing issues

- Projects may be 100% foreign-owned. In practice, foreign developers need an Indian partner to take care of the local issues
- No clearance required from Central Electricity Authority for projects up to Rs 40 billion (US$1 bn), if the project is competitively bid
- "Mega Project status" awarded to a number of projects. Power Trading Corporation to be the off-taker
- Revised counter-guarantee agreement for fast track power projects not acceptable to a certain lenders
- Reliable alternative to GOI guarantees not yet established
- Some states (like Tamil Nadu) more advanced in establishing escrow structures acceptable to lenders
- Indian Public financial institutions re-looking at security structure mechanism. Preliminary work on funding of power projects linked with SEB reforms

India



- New Electricity Reforms Bill under discussion. Focus on increasing the pace of Electricity reforms
- Little capacity addition under the IPP program. Shift back in focus on capacity build up in the Public Sector
- Financial closure limited to small (100-300 MW) power projects, Dabhol phase - II being the only exception
- Future progress of IPPs would depend on progress of reforms in states

India

Debt financing options

Debt market options	Availability	Tenor
Multilaterals	Moderate - High	12-20 years
Export Credit Agencies	Moderate	14 years*
International Commercial Banks	Low-Moderate	8-10 years
Domestic Commercial Banks	Moderate	10-12 years
Domestic Capital Market	Low	5-7 years
International Private Placement	Very low	10-15 years
International Capital Markets	Very low	10-15 years

* Construction period plus 14 years

India

- Multilaterals have high risk appetite, but have a preference for the distribution sector over the generation sector
- Export Credit Agencies not yet willing to accept commercial project risk. Attractive source of finance due to long tenors of loan (against IFI/Commercial Bank guarantees)
- International Commercial Banks have shown some appetite for Indian power project risk
- Domestic/International Capital markets not yet a realistic source of finance for power projects

Indonesia



Overview

- IPP program derailed by economic crisis of 1997/98
- PPAs under renegotiation, most projects in or near default on their loans
- Economy recovering with 0.7% growth in 1999 and forecast growth of 6% in 2000.
- Electricity demand (peak load) in the Java-Bali grid increased by 11% in second half of 1999
- PLN expects demand for new generation capacity on Java-Bali by 2003/04.
- Restructuring and privatisation of PLN being studied
- Future of private sector involvement will depend on satisfactory resolution of existing PPAs

Korea



Market overview

- KEPCO owns the vast majority of existing installed capacity in Korea. KEPCO controls approximately 45 GW of generation capacity which the majority is thermal though a significiant proportion is nuclear
- Long term power development plan calls for an increase in installed capacity to 90 GW by 2015
- Since 1996, the Korean Government has been contemplating the restructuring of KEPCO and the Korean power industry
- In 1999, the Korean Government announced that the industry would be privatised in four phases but the relevant legislation was eventually rejected by the National Assembly due mainly to strong opposition from labour unions and civil groups
- The privatisation programme is currently being re-evaluated by the Korean Government
- International developers have been able to enter the Korean power industry through ventures with Korean chaebols by investing in their captive power assets

Korea



Development and financing issues

- Foreign ownership restricted to 49%, except for KEPCO's assets offered through privatisation process
- IPP programme dominated by Korean conglomerates
- International IPP developers exhibited strong interest in KEPCO assets but different price expectation between KEPCO and the developers is an issue, as indicated in the recent attempted sale of Anyang/Buchon district heating plants
- Power tariffs not indexed to US dollar exchange rate
- No records of limited recourse project financing
- Domestic financial institutions unsophisticated with regard to non-recourse financing. Tenors are limited but refinancing risk accepted
- Still limited access to foreign-currency funding in the aftermath of the 1997 financial crisis

Korea



Debt financing options

Debt market options	Availability	Tenor
Multilaterals	Low	n/a
Export Credit Agencies	Low	8 years*
International Commercial Banks	Low	3 years
Domestic Commercial Banks	High	3-5 years**
Domestic Capital Market	Moderate	3-7 years
International Capital Markets	Moderate	3-5 years

* Construction period plus 8 years
** Only KDB provides up to 7-10 years funding

Malaysia



Electricity industry reform in progress

- Phase I – Tenaga's divestment of 40% stakes in non-hydro generation assets
  - sale of 40% stakes in Tenaga's six existing non-hydro power generation assets
  - establishment of an Independent System Operator ("ISO") and the Energy Commission (regulator)
- Phase II – Launch of the Power Pool
  - introduction of a competitive electricity wholesale market (power pool) in peninsular Malaysia by 2003 with a deadline set at 2005
  - single buyer market with Tenaga maintaining a monopoly of transmission and distribution; regulation of transmission and distribution tariffs remains to be finalised
- Phase III – Tenega's divestment of remaining stakes in generation assets and privatisation of distribution assets
  - Tenaga will retain the transmission assets, hydropower plants (1,800MW) and possibly minority stakes (<25%) in the non-hydro-plants
  - the future number of distribution franchises remains to be determined (currently four)
  - current cross-subsidy of tariffs for customers in different locations to be resolved

Malaysia



Development and financing issues

- Strong local players dominate the IPP market
- International developers have teamed up with local players to bid for stakes in Tenaga's assets
- Power tariff denominated in Ringgit without USD exchange rate indexation
- Domestic commercial banks have sufficient liquidity but have been cautious to lend
- Domestic capital market has developed rapidly over last 12-18 month and are now a viable source of financing for power projects
- Islamic funding alternatives available for projects

Malaysia



Debt financing options

Debt market options	Availability	Tenor
Multilaterals	Low	10-20 years
Export Credit Agencies	Moderate	12 years*
International Commercial Banks	Moderate	12-15 years
Domestic Commercial Banks	High	12-15 years
Domestic Capital Market	High	7-15 years
International Private Placement	Low	10-15 years
International Capital Markets	Low	15+ years

* Construction period plus 12 years

Philippines



Market overview

- Problems of the early 90s have been resolved through a successful BOT program
- Private power generation currently contributes 45% of the total generation capacity
- 1999-2010 power development program calls for over US$10 billion of additional investments
- To meet industry development requirements and improve competitiveness of the Philippine power sector, the Philippine government intends to restructure and further privatise the power industry which calls for:
  - unbundling and privatisation of NPC's generating and transmission assets
  - introduction of competition in the generation sector
  - implementation of retail competition and open access
  - creation of an entity to manage trading activities in the power market
  - restructuring of rate structure and the phasing out of cross subsidies
  - strengthening of the distribution sector through consolidation
  - redefining and strengthening the roles of regulatory agencies

Philippines

Development and financing issues

- Generation sector over capacity situation expected to last until 2004, base load generation projects up to 2004 have been committed
- Government is seeking to reduce its support for obligations of state owned companies acting as counter-parties
- Proposed industry restructuring allows for the further participation of the private sector through the privatisation of NPC's generation and transmission assets
- Valuation and acquisition financing for the privatisation exercise would be sensitive to proposed industry restructuring and its implementation
- Financing available from the domestic market is limited in terms of amounts and tenor
- Financing from international banks is constrained by the availability of political risk cover
- Support from ECAs during the privatisation process is expected to be limited

Philippines

Debt financing options

Debt market options	Availability	Tenor
Multilaterals	High	10-12 years
Export Credit Agencies	High	14 years*
International Commercial Banks	High	10-15 years**
Domestic Financial Institutions	Moderate	5-7 years
Domestic Capital Market	Low	5-7 years
International Capital Markets	Low	15-20 years

* Construction period plus 14 years, tied to procurement
** Subject to availability of political risk cover

Thailand



Market overview

- Implementation of IPP program delayed due to economic crisis of 1997/98
- Independent Power first IPP to achieve commercial operation in early 2000
- Tri- Energy first IPP to achieve financial close post 1997 financial crisis
- Eastern Power and Bowin Power expected to achieve financial close in 2000
- Reserve margin of up to 50% projected for 2002-03 falling to 20% by 2006
- Privatisation of EGAT expected to progress with IPO of Ratchaburi power plant in 2000
- Electricity industry reform being studied by NEPO with aim to introduce a competitive whole sale market by 2003

Thailand



Development and financing issues

- Introduction of USD exchange rate indexation in PPA tariff has helped existing IPP to achieve financial close
- IPPs transition into a power pool remains to be addressed
- In view of high projected reserve margin the opportunities for greenfield projects appear limited
- Opportunities for private sector participation will arise from EGAT privatisation
- International lenders concerned with relatively slow economic recovery
- Domestic banking sector is recovering but remains weak
- Domestic capital market is developing
- Political uncertainty associated with Thailand's slow economic recovery

Thailand

Debt financing options

Debt market options	Availability	Tenor
Multilaterals	Moderate	10-20 years
Export Credit Agencies	Moderate - High	10-12 years*
International Commercial Banks	Moderate	15 years
Domestic Commercial Banks	Low-Moderate	5-10 years
Domestic Capital Market	Moderate	5 years
International Private Placement	Low	10-15 years
U.S. Capital Markets	Very low	18+ years

* Construction period plus 10-12 years

Vietnam

Market overview

- Power supply shortage continuing
- 600-700 MW of new capacity per annum required. US$4 billion of foreign investment required over next five years
- EVN (formed October 1994) responsible for generation and sale of electricity
- International investment actively sought
- Legislation in place for BOT projects but untested
- Attempts being made to implement BOT projects in power sector
- Phu My 2.2 first competitively tendered BOT project under World Bank auspices, but implementation progressing slowly
- Government reluctant to provide guarantees for obligations of Government entities and/or support on project risks

Vietnam

Development and financing issues

- Government approval process
  - Ministry of Planning and Investment ("MPI") approval
  - Prime Ministerial and Line Ministry approval
- Currency convertibility guaranteed under BOT regulations
- Offshore escrow account only for debt service
- Adequate collateral security difficult to achieve
- EVN or regional electricity company will be power purchaser. Creditstanding must be supported by MoF guarantee to achieve financeability
- Government officials have no experience in negotiating bankable contracts
- Involvement of multilaterals/ECAs considered essential for financing of even the small projects

Vietnam

Debt financing options

Debt market options	Availability	Tenor
Multilaterals	Moderate - High	10-20 years
Export Credit Agencies	Moderate	12 years*
International Commercial Banks	Low	10 years?
Domestic Financial Institutions	Very low	n/a
Domestic Capital Market	Nil	n/a
International Private Placement	Low	10-15 years?
International Capital Markets	Very low	5 years

* Construction period plus 12 years

SESSION 7
ENVIRONMENTAL POLICIES AND ASSESSMENT

P. C. Mohan Munasinghe

Mr. Munasinghe, a Sri Lankan national, has advanced degrees in economic, engineering, and physics from Cambridge University (UK), the Massachusetts Institute of Technology (USA), and McGill University (Canada). Presently, he is Senior Advisor, Environment Department, World Bank, and Distinguished Visiting Professor of Environmental Management, University of Colombo. Previously, he served as Division Chief for Environmental Policy, and also Division Chief for Energy and Infrastructure at the World Bank. From 1982 to 1986, he was the Senior Energy Advisor to the President of Sri Lanka. During 1990-92, he served as Advisor to the U.S. President's Council on Environmental Quality. He has won a number of international prizes for his research, and authored over 60 books and several hundred technical papers.

POWER SECTOR REFORM AND THE ENVIRONMENT

Mohan Munasinghe
Environment Department
The World Bank

Outline of Presentation

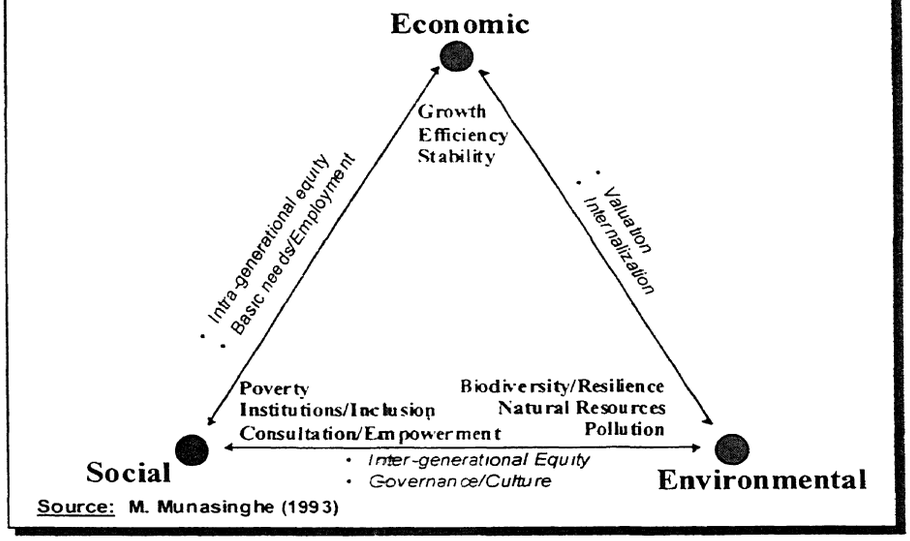
- Basic Concepts
- Environmental Safeguards
- Role of Private Sector

Making Development More Sustainable

'An approach that will permit continuing improvements in the quality of life at a lower intensity of resource use, thereby preserving for future generations an undiminished or even enhanced stock of productive assets (manufactured, natural and social capital)'

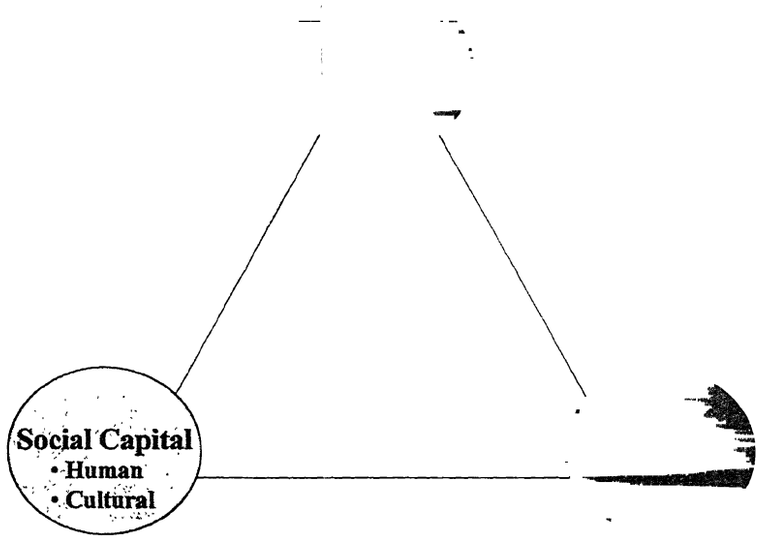
Source: Munasinghe (1993)

Figure 1. Elements of Sustainable Development



Source: M. Munasinghe (1993)

Elements of Sustainable Development



Accelerated growth requires:

- ECONOMIC: high levels of investment and accumulation of manufactured capital.

Sustained growth also requires:

- ENVIRONMENTAL: maintenance of natural capital and environmental resources.

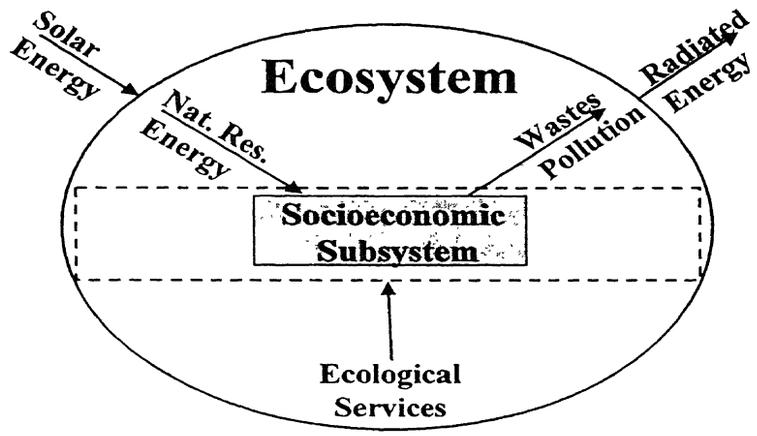
Reducing poverty and unemployment further requires:

- SOCIAL: strengthening institutions, social inclusion, trust, etc. and improving human capital and skills through better education and information.

The environment is closely linked to major national objectives:

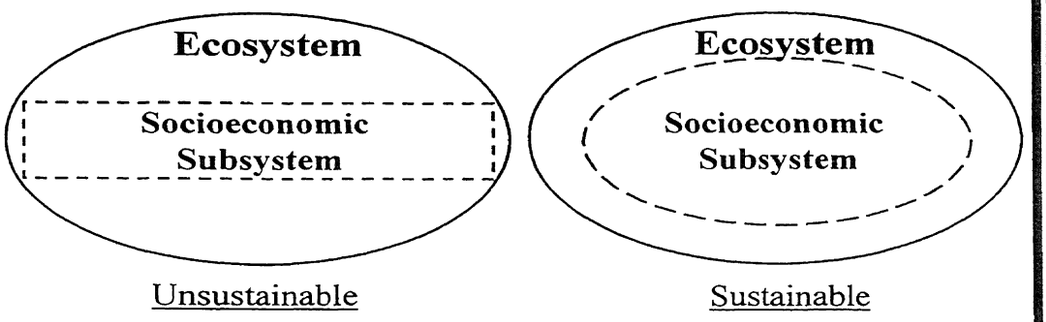
- sustained growth
- poverty eradication and employment creation

The capacity of the ecosystem may become overloaded by the growing socio-economic subsystem (broken lines).



Source: Munasinghe (1996)

Restructuring Growth

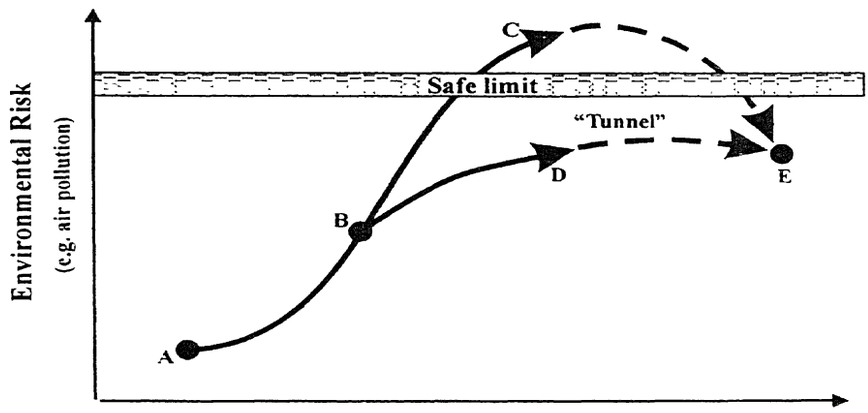


Unsustainable

Sustainable

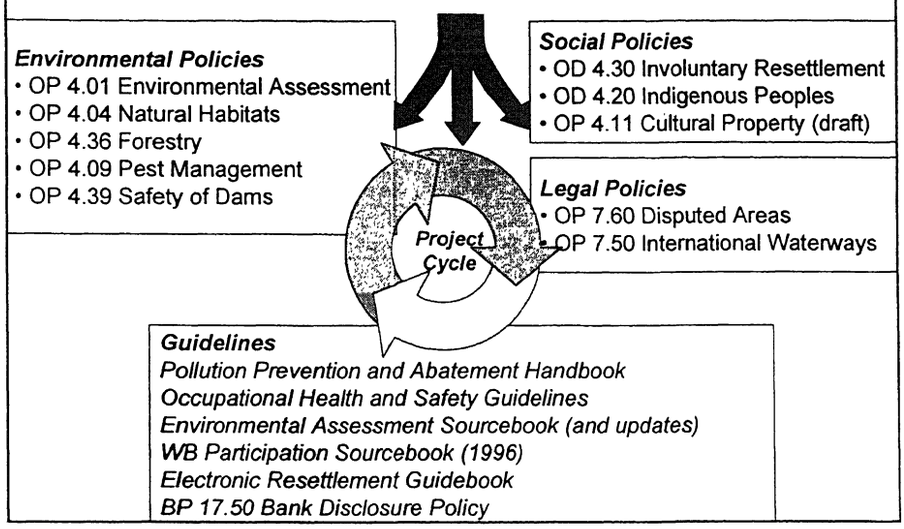
Source: Munasinghe (1996)

Environmental Risk versus Development Level



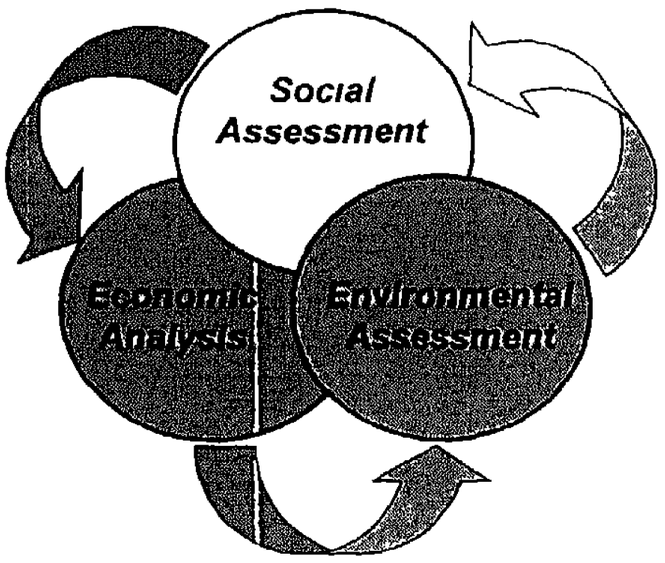
Source: M Munasinghe (1995) "Making Growth More Sustainable," *Ecological Econ.*, vol 15

Safeguard Policies and Guidelines



Paying attention to SG Policies can avoid problems and add value

- ☑ Identifies issues -- avoids surprises
- ☑ Improves relations with local communities
- ☑ Prevents delays and stoppages
- ☑ Prevents conflicts/legal disputes
- ☑ Helps design better projects
- ☑ Allows for good corporate image
- ☑ Reduces economic costs
- ☑ Can contribute to borrower capacity building



Projects are enhanced by integrating social & environment considerations into project design

Environmental Assessment OP/BP/GP 4.01

Objectives:

1 *To ensure that projects proposed for Bank financing are environmentally and socially sound and sustainable*

2 *To inform decision makers of the nature of environmental and social risks (e g provisions to ensure compliance and prevent likely non-compliance)*

3 *To involve decision makers and stakeholders*

Essential Elements of Bank EA Policy

➔EA is a flexible procedure which varies in nature and scope;

➔Applies to all projects except SAL and some emergency loans;

➔EA is borrower's responsibility. Bank advises and assists borrower;

Essential Elements of Bank EA Policy (Continued)

➔Region ensures compliance with safeguards;

➔Information disclosure and public participation

➔Integrates Environmental Management Plans into project design

EA - What is it?

- Identifies and evaluates the risks of a project on natural environment, human health, socio-cultural conditions, and local and global issues;

- Involves **screening** and **scoping** for potential environmental and social risks and impacts;

- Evaluates **project alternatives** (e.g. site selection and design);

EA - What is it? (continued)

- Integrated with **technical and economic analysis** to understand project trade-offs;

- Results in EMP for preventing, minimising or compensating for adverse project impacts,

OP 4.01 Policy Triggers

- Could the project have any potential risks or impact on the natural environment?
- Could the project have any risks or impact on human health and safety?
- Does the project have any potential social impact?
- Does the project involve transboundary or global environmental aspects?
- Is the project's area of influence likely to be affected by the project, including its ancillary aspects?

Environmental Screening



- *Objective* - To determine EA category and scope of analysis required by that categorization
  - reflects potential environmental and social risks

- *Participants* - Borrower/task team proposes category to Regional Environment Unit

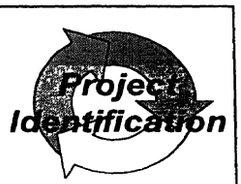
Environmental Screening (continued)



- *Outcome* - EA categorization (A, B, C or FI) and definition of level of analysis required

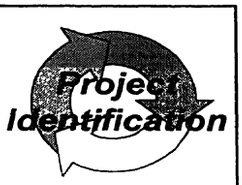
- *Factors affecting categorization* -
  - project type, location, sensitivity and scale
  - nature and magnitude of project risks
  - applicability of safeguard policies

Category A



- ***Definition:*** Likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented

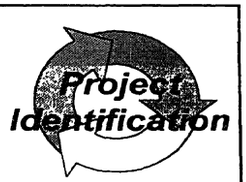
Category B



Definition

- Have potential adverse environmental impacts which are less serious than for category A; impacts are mostly reversible and do not include significant lost of or damage to Natural Habitats; mitigation measures can be more readily designed than for Category A

Category C



Definition

- Projects likely to have minimal or no adverse environmental impacts

Category FI



Definition: Projects involving investment of Bank funds through a financial intermediary in subprojects that may result in adverse environmental impacts.

- This is a new category for IDA/IBRD projects since January 1999

Involuntary Resettlement OD 4.30

Objectives:

- *To avoid or minimize involuntary resettlement and related disruption; and*
- *To assist the displaced persons in their efforts to improve their standards of living or at least to restore them.*

OD 4.30: Policy Triggers

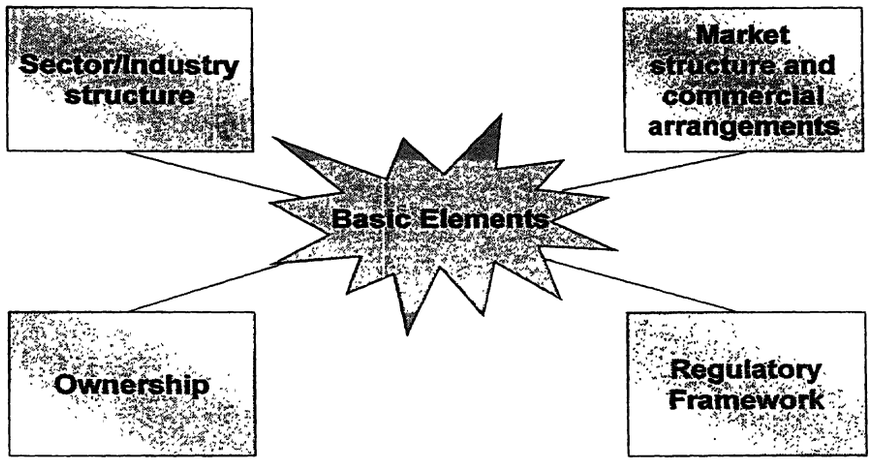
The involuntary taking of land, resulting in:

- relocation or loss of shelter;
- loss of assets or access to assets; or
- loss of income sources or means of livelihood, whether or not the affected persons must move to another location

Policy Principles

- ➔Minimize economic and physical displacement
- ➔Design resettlement as a development program
- ➔Provide opportunities for participation by PAPs
- ➔Lack of title no barrier to eligibility
- ➔Compensate at full replacement value of lost assets

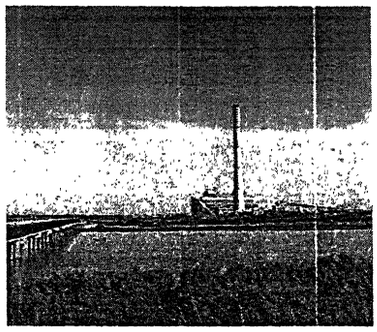
Reform Model



The objectives of regulation

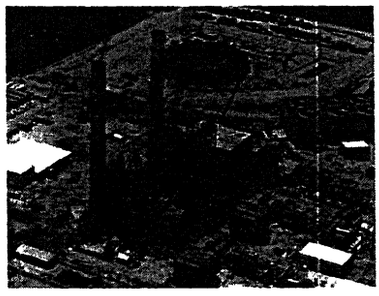
- At the broadest level, regulation should:
  - protect consumer interests, including the poor
  - ensure that businesses can finance their activities
  - promote efficiency and competition
  - protect the environment
  - meet other needs like price stability, political acceptability, etc.

Coal-fired Power Plant



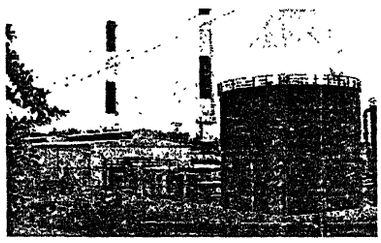
- Category A projects
- Air emissions
- Water use, wastewater
- Cooling system and impacts on marine
- Energy efficiency and GHG emissions
- Ash management

Gas Turbine Power Plant



- Fuel is gas or light fuel oil
- Noise
- Fuel supply (gas pipeline)
- Back-up fuel
- Safety
- NOx emission

Diesels/Engine-Driven Power Plant



- Small in scale (less than 150MW)
- High NOx emissions
- Low-quality (high-sulfur) fuel oil
- Noise (both ambient and occupational)
- Oil spill prevention

Ambient Air Quality Guidelines (World Bank)

		1988	IFC since 1994	*1998 PPAH*
SO_2	Annual Ave	100	50	80
	24-h Max	500	125	150
NO_2	Annual Ave	100	na	100
	24-h Max	na	150	150
PM	Annual Ave	100	70 (PM10)	50 (PM10)
	24-h Max	500	110 (PM10)	150 (PM10)

($\mu g/m^3$)

Air Quality & Emissions Guidelines *(1998 PPAH)*

- What if a power plant is to be constructed in a polluted site? (eg. An area where background levels already exceed air quality guidelines)
- More stringent emissions limits (in some cases, even "no net increase" in emissions) apply.
  - Moderate airshed: Minimize the incremental impact
  - Poor airshed: No net increase in emissions (offset required)

SO_2 Emissions Guidelines

Airshed	(Annual Ave: $\mu g/m^3$)	1988	IFC	*1998 PPAH*
Unpolluted	<50	500tpd, 50$\mu g/m^3$	100tpd	0.2tpd/MW (0~500MW) + 0.1tpd/MW (500MW~) [Max 500tpd]
Moderate	50	500tpd, 50$\mu g/m^3$	100tpd or	(<500MW) 0.2tpd/MW, 5$\mu g/m^3$
	100	100tpd, 10$\mu g/m^3$	0.2tpd/MW (whichever	(>500MW) No net increase
Very polluted	>100	100tpd, 10$\mu g/m^3$	is lower)	No net increase

Notes: "$\mu g/m^3$" figures in the emission limits mean maximum annual increments. Airshed categorization will use 24-h maximum figures as well.

PM Emissions Guidelines

	1988	IFC	1998 PPAH
Unpolluted	100		50
Moderate	150 (rural area)	50	(<500MW) 50 (>500MW) No net increase
Polluted			No net increase

(mg/Nm^3)

Moderate: Annual Ave>50$\mu g/m^3$ or 98% of 24-h Ave>150$\mu g/m^3$
Polluted: Annual Ave>100$\mu g/m^3$ or 95% of 24-h Ave>150$\mu g/m^3$

NOx emissions Guidelines (1998 PPAH)

- GTs and DEs are added.
  - 1988 (gas: 86, oil: 130, coal: 300 ng/J)
  - 94-96 (gas: 90, oil: 135, coal: 270 g/Mbtu)
  - 1998 PPAH
    Boilers (gas: 86, oil: 130, coal: 260 ng/J)
    GTs (gas: 125, diesel: 165, oil: 300 mg/Nm3)
    Engines (2,300/2,000 (after Jul 2000) mg/Nm3)
    if resultant ambient NO2 <150 ug/m3

Noise Guidelines (1998 PPAH)

- For residential receptors,

  Noise levels measured at receptors outside the project boundary should not exceed:

  - 1994/96: 55 dBA (day) /45 dBA (night)
  - 1998 PPAH: 55 dBA(day) / 45 dBA(night) or a max increase in background levels of 3 dBA
- For industrial receptors, 70 dBA

Exemptions for "No Net Increase" *(1998 PPAH)*

- Gas-fired plants (provided that the back-up fuel contains less than 0.3% S)
- Plants that achieve emission levels of less than 400 mg/Nm3 for SOx and NOx

Health impacts of SO_2

- Possible small reversible declines in children's lung function (250-450 $\mu g/m^3$)
- Aggravation of bronchitis (500 $\mu g/m^3$)
- Increased mortality (500-1,000 $\mu g/m^3$)

World Bank air quality guidelines:
- 150 $\mu g/m^3$ (24-hour maximum)
- 80 $\mu g/m^3$ (annual average)

Health Impacts of PM

- Excess mortality (500 $\mu g/m^3$)
- Increased acute respiratory morbidity (adults) (250 $\mu g/m^3$)
- Decrements in lung function (children) (180 $\mu g/m^3$)

World Bank air quality guidelines:
- 150 $\mu g/m^3$ (PM_{10}) (24-hour maximum)
- 50 $\mu g/m^3$ (PM_{10}) (annual average)

Health Impacts of NOx

- Young children and asthmatics are at greatest risk from NO2 exposures
- Chronic bronchitis and individuals with emphysema or other chronic respiratory disease may be sensitive to NO2 exposures

  World Bank air quality guidelines:

  – 150 $\mu g/m^3$ (24-hour maximum)

  – 100 $\mu g/m^3$ (annual average)

SHEKHAR SINGH

Currently

- On the Faculty of the Indian Institute of Public Administration New Delhi
- Member, Review Committee, Indira Sagar (Narmada) Project, Government of Madhya Pradesh
- Member, Narmada Control Authority Sub-Group on Environment, Ministry of Environment and Forests, Government of India
- Consultant, World Commission on Dams, South Africa

Formerly

- Chairman, Environmental Appraisal Committee for Thermal Power Projects, Ministry of Environment and Forests, Government of India
- Advisor (Environment and Forests), Planning Commission, Government of India
- Member, Expert Committee to Review the Tehri Hydroelectric Project, Ministry of Power, Government of India
- Member, Environmental Appraisal Committee for 'River Valley Projects' Ministry of Environment and Forests, Government of India

Assessment Process

Shekhar Singh

Some issues relating to the Assessment Process

- A lack of assessment till 1978
- Appropriateness of Environmental Impact Assessments
  - ➢ *Hurried studies*
  - ➢ *Lack of standards*
  - ➢ *Paid for by the project proponents*
- Lack of Retrospective Assessments
  - ➢ *No empirical base for assessing impacts*
  - ➢ *No assessment of efficacy of preventive or mitigative measures*
- Political and Administrative Pressures
  - ➢ *Kayamkulam, Dholpur, etc*
- The ability to Enforce and Monitor Conditions
- Monitoring Standards
- Monitoring Conditionalities (eg. Korba)

Lessons to be learnt

- A lack of assessment till 1978
- Clear and Transparent Standards Required
- Certain Values Absolute
- Others subject to trade-off
- Costs of Prevention and Mitigation Fully Internalised (eg Fly Ash)
- Effective Monitoring

Future Directions

- Projects Part of Over-all Plan
- Prior Environmental Assessment of Sites
- Environmental Zonation of the Country
- Transparency
- Self Regulation
- Stringent Penalties
- Peoples Vigilance

SESSION 8
SECTOR REFORM : SOCIO POLITICAL ISSUES

Reforms in the Power sector in South Asia - Impacts on the under-privileged

Presentation by
R K Pachauri

Taj West End, Bangalore

May 16, 2000

Presentation Outline

- Introduction
- Region profile
- Nature of reforms
- Reform implications
- International experience
- Mechanisms to protect the poor

Introduction

The under-privileged - a definition

- ⌘ absolutely no access to electricity services
- ⌘ limited ability to pay
- ⌘ little or no say in the restructuring of electricity markets nor in the markets for their produce

Rationale for greater regulatory supervision

- ⌘ Privatisation and commercialisation would lead to overlooking of the problems afflicting this population
- ⌘ Unlikely to have the ability to influence the process
- ⌘ Little control on the quality of electricity and service received

Regional Profile

- ⌘ Socio-economic characteristics
  - 20% of world population
  - Housing 40% of world poor
  - Experiencing rapid growth
  - Excess labour but shortage of capital
- ⌘ Significant shortages and inefficiencies leading to grave economic losses
- ⌘ Sector a mechanism of delivering social largesse without assessing social impact
- ⌘ Resorting to privatisation and the introduction of competition in infrastructure service provision
- ⌘ Accompanying regulatory reform

Electricity sector

	B'desh	B'tan	India	M'ives	Nepal	P'tan	SL
Prod.	11.5	1.7	404.5	.06	1.03	59.3	5.0
Cons.	11.3	.25	406.0	.06	1.01	59.3	5.0
Per capita cons.	143	70	324	123	46	474	276

Note: Production and consumption in Billion kWh

Source: World Factbook 1998



Nature of reforms

Driving Forces

- Poor rates of return, high losses and increasing shortages
- Donor agencies shifting focus from project lending to institutional reform

Objectives

- Evolving a more efficient operational structure ⇨ corporatisation /privatisation
- Creating/inviting competition ⇨ functional unbundling /open bidding process



Institutional changes

- Redefining the role of the government:
  - encouraging it to divest the roles of owner & regulator
  - retaining only its role as a policy maker
- Establishing independent regulation through the enactment of appropriate legislation

Impact of restructuring and reforms

Current progress aimed towards

- Tariff rebalancing with a view to reflecting cost of supply at different voltage levels
- Thereby, reducing the level of cross subsidy
- Adding capacity with an eye on short term alleviation of shortages⇒price per unit of generation will increase
- No significant debate on enhancing supply to the under-privileged

Role and responsibilities of the regulator

- Encouraging investments, competition, efficiency improvements and providing for adequate returns
- Equally importantly, the regulator must invest time and resources in ascertaining
  - where thefts are actually taking place
  - the true opportunity cost for clearly defined segments of population
  - the mechanisms that would ensure access to all consumers in a fair and equitable manner
  - the relationship between quality of supply and tariff chargeable

Table 5: Scenarios on implicit subsidies at various voltage levels

Head		Transmission EHT	Distribution HT	Distribution LT	Total
Cost of supply@ 16% loss	*Rs./kWh*	*2.33*	*2.57*	*3.27*	*3.00*
Cost of supply @ 30% loss	*Rs./kWh*	*2.25*	*2.65*	*3.77*	*3.34*
Average tariff realised	*Rs./kWh*	*3.74*	*3.97*	*1.16*	*2.04*
Subsidy @ loss of 16%	Rs./kWh	-1.41	-1.39	2.11	0.96
Subsidy @ loss of 30%	Rs./kWh	-1.48	-1.31	2.62	1.30

Note: May be mis-representation of actual subsidy

Quote from Irwin, World Bank

⌘"Charging different customers different prices for the same product does not always imply a cross-subsidy. ... In general, when there are common fixed costs of production to be allocated among customers, economic efficiency requires that prices vary according to customers' sensitivity to price changes. ... But as long as all prices fall between the stand-alone and the incremental cost, the price differences do not contain cross-subsidies"

Estimated Cost of stand-alone captive power (2.5 MW)

	Total cost (Rs/kWh)
Bagasse (bagasse cost @ Rs 200/mt)	1.24
CCGT (LPG)	3.36
CCGT (NG)	1.82
GT (Naphtha)	5.94
DG set (FO)	3.21
Steam (Coal)	2.47

Costs may be higher for non-continuous processing industries

Other country experience - UK

Elements of Social Action Plan

OFGEM licence changes require suppliers to

- accept payments in cash on a fortnightly or more frequent basis (previous minimum requirement to accept cash payments quarterly)
- publish Codes of Practice to ensure that prepayment customers are better adviced on services available to them
- level up to best practice the provision of energy efficiency advice .....



Other country experience - UK

Other actions

- maximum prepayment meter surcharge of £15 a year down from £27
- Affordable Warmth Programme announced in October 1999 - public private partnership for the installation of energy efficiency measures in 1 million poor homes
- potential new opportunities exist for helping disadvantaged customers, which need to be researched or piloted.



Other country experience - USA

- NARUC resolution (1997) urged

"congress, as it considers legislation to restructure the nation's electricity industry, to include in such legislation workable mechanisms to support State and Utility public benefits programs such as energy efficiency, renewable energy technologies, research and development, and low income assistance...".



Other country experience - USA

- States in the US are imposing a system benefit charge & distribution fee
  - the System Benefits charge is designed to fund public benefits programs such as renewable energy, energy efficiency, R&D as well as assist low-income consumers
  - the distribution fees are focussed on providing assistance to low income consumers.



Other social mechanisms

- *"Lifeline" rates*
- *Vouchers*
- *Targeted cash payments*
- *In-kind transfers*
- *Targeted transfers in-kind*
- *General wage or pension increases*



Conclusion

- Combination of opportunity cost based tariff setting (with a TOU differentiation) and cost of supply based tariff setting (with subsidy commitments from govt.)
- Reduce inefficiencies in the sector
- Design appropriate pro-poor reform package
  - Recognise the obligation for provision of non-discriminating service
  - Identify the target population
  - Defining tariff mechanisms that would deliver results in different time-frames
- Increase awareness and representation of the under-privileged in the process



Private participation and the need of the Poor
Argentina´s Experience in the Electricity Sector

Martín Rodríguez Pardina

Universal Service Obligations

- The problems:
  - Which customers and services should be subsidised?
  - How do we finance the subsidies?
  - How do we ensure efficiency (minimum costs) in the provision of the subsidised services?

Which Customers and Services

- Basically a political decision
- Argentina
  - Low income pensioners
  - Schools and hospitals in rural areas
  - Uniform tariffs for all residential customers (some provinces)

Financing Mechanisms

- Cross subsidies
  - Lack of transparency
  - No incentive to expand to low income groups
- Specific taxes
- Direct subsidies
  - Cost of public funding
  - Long term commitment problems

Subsidies

- Cross-subsidies forbidden by law.
- Direct subsidies to low income pensioners and charities.
  - –The costumer is invoiced 50% of the tariff
  - –The difference is covered by the federal government
    - The annual budget has to include the funds to cover the subsidy

National Energy Fund

- Intermediate solution between direct and cross subsidies
- Tax on wholesale sales
  - 2.4 U$/Mwh (approximately 15%)
  - Revenues approximately 100 Million U$ a year
- Fund to be used
  - To subsidise access (investments) in poor provinces
  - To subsidise consumption (tariffs) in high cost areas.

Efficient Provision

- Built in incentives to minimize costs in concession contracts
  - Dealing with losses in Buenos Aires
- Competition for the market
  - Award to party asking lowest subsidy
    - Disperse demand areas in provinces
- Play or pay mechanisms

Losses

- Before privatisation technical and commercial losses in SEGBA amounted to near 25% of total energy
- Political decision to allow only technical losses to be included in the tariff leaving private concessionaires to solve the problem of commercial losses.

Commercial Losses

- **Industrial users. Illegal connections. problem solved within the first year of the concession.**
- **Low income neighbourhoods Meter tampering. Problem solved in a 90% within the first 18 months of the concession.**
- **Shanty towns. No meters installed. Social problem. Agreement with federal, provincial and municipal authorities.**

Solution for Shanty Towns

- 4 years agreement between Private Firms, National State, Buenos Aires Province and local Municipalities
- Private firms
  - Resign claim for past consumption
  - Installation of communal meters within 120 days
  - Compromise not to cut power to normalized users

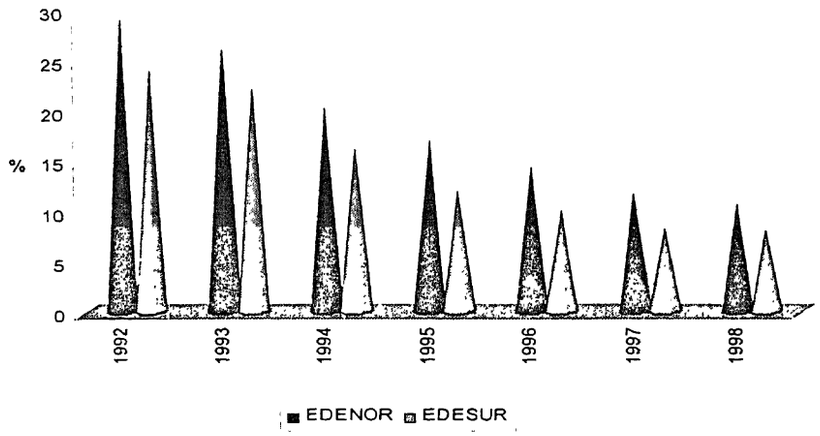
Solution for Shanty Towns (cont)

- Municipalities
  - Carry a Census
  - Build streets
  - Promote creation of village representatives commission
- Bs.As. Province and Federal Government
  - Creation of a special fund to be destined to cover lack of payment by low income users.
    - Federal government: Value added tax on new users
    - Buenos Aires: Taxes on power consumption

Losses: Results so far

- Sharp reduction in losses

Energy Loss



Results so far (cont)

- Shanty towns
  - Initially high success (98% of users paying).
  - With the beginning of economic recessions the problems seems to reaper. Has to be treated on a long-term basis.

Conclusions

- Regulation can improve the way universal access is financed and delivered
- A sector specific tax seems an efficient finance mechanism
- Competition for the market and well designed incentives can improve efficiency
- Dealing with social problems is a permanent issue to be addressed by regulators and political authorities

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PROTECTING THE POOR IN THE ERA OF UTILITY PRIVATIZATION

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ABSTRACT

In the era of utility privatization, price of some commodities will rise, at least where there is no competition. In this country the price of electricity will go up as soon as the government subsidy from this sector is withdrawn. This will hurt the rural poor. A program by the name rural electrification is supplying electricity to rural areas very successfully. This model works on cooperative principle. The public utility is beset with problems like revenue loss, labor unrest and corruption, whereas, the model is doing pretty well. This program is surviving, making profit and going from distribution to generation. The story of this successful cooperative model in rural electrification is discussed in details in this paper.

1.0 Introduction

The state owned electricity board named Bangladesh Power Development Board (BPDB) is the sole generating, transmitting, distributing, selling and regulatory authority in the country. The progress of electrification in rural areas was not very satisfactory under BPDB. The Government of Bangladesh, from the experience of nearly three dozens developed and developing nations, has adopted the cooperative concept to implement rural electrification program covering the entire rural areas of the country in phases and National Rural Electric Cooperative Association (NRECA) of USA played an important role. The Rural Electrification Board (REB) was formed in 1977 by a government ordinance [1] in line with the infrastructure reforms in power sector. The aim of this ordinance was to introduce the cooperative principles in power sector in rural areas. The Palli Biddut Samity (PBS, Rural Electric Cooperative) is the core unit that runs the cooperative. Consumers of the PBS are the owners of the system and it is governed by a Board of Director, elected from among the consumers to run the system in a democratic, yet cost-effective manner. There is no trade union or CBA (Collective Bargaining Agent) in PBS as the members are the owners. At present there are 55 PBSs with 2,705,680 consumers (13.31%) in 27,993 electrified villages (43.74%) countrywide. The Dhaka Palli Biddut Samity–1 (Dhaka PBS-1) is the first rural power cooperative.

Recently a committee was formed to investigate and formulate power sector reform. This committee formulated the National Energy Policy [2] where a national regulatory authority named National Energy Authority (NEA) was suggested to carry out the regulatory functions like issue license, formulate/fix tariff, enforcement and monitor of technical standard, resolve legal issues and dispute between different agencies. In 1995 the government has set up a Power Cell which has a mandate to lead private power development, recommend power sector reform and restructuring, conduct study on tariff and formulate regulatory framework for power sector.

There are a few Independent Power Producers in the country. Recently the Power Grid Company of Bangladesh (PGCB) was created which will handle the transmission of electrical power.

2.0 Rural Power Cooperative Model

The REB is the regulator and PBS is the unit that runs electricity supply system in rural areas in different parts of the country. At present REB purchases electricity from state owned electricity board BPDB.

2.1 Rural Electrification Board

Rural Electrification Board (REB) is responsible for electrification in rural areas. The Board consists of a chairman and three full time members and four part-time members. The function of the board is to establish electricity generation, transmission, transformation and distribution systems in the rural areas, to organize the prospective consumers of electricity into formal and informal groups, such as Palli Biddut Samities (PBS), i.e. Rural Electric Cooperative, electric and other cooperatives, societies, associations and companies for the purpose of execution and management of schemes and provide related services.

The REB is empowered to receive grants and raise loans from the government and other bodies and individuals for creating funds for the purpose of carrying out business and to advance funds on such terms and conditions as it may determine to PBS and to prescribe relending terms for the PBS and other groups and prescribe regulations for project appraisal and credit administration. In short this is the terms of reference of the ordinance (reform). The organizational structure and functions are discussed in Appendix A.

2.2 Rural Power Cooperative

The cooperative concept was found to be suitable in the context of program's enormous size and its implication to socio-economic reality of the country. The concept envisages decentralization of the operation and management of electricity distribution system by forming cooperatives, i.e. PBS. Each PBS comprises of 5 to 9 thanas, i.e. sub-district covering between 700 and 1500 square kilometers. The responsibility of operating PBS's financial and management affairs are entrusted with member-consumers themselves in accordance with set rules of PBS. Consumers' electric connections are provided to private households, industries, commercial and social enterprises, and irrigation pumps.

These PBSs are consumers owned cooperatives enjoying equal rights and opportunities. Each PBS operates a rural distributions system within its command area. The Board, which set up to carry forward rural electrification program in a planned manner, helps PBS to attain self-sufficiency in the operation and management of its activities. As per rule, the business of a PBS runs on no-loss no-profit basis. Any operating surplus or deficit is adjusted in the form of lower or higher electricity rates in the respective PBS. The Board as regulatory body continuously monitors and assesses the engineering, financial and management aspects of PBSs and ensures that the standards set by the Board is achieved. Besides the above monitoring, Foreign Advisory Institution (NRECA) also monitors and assists the PBSs activities regularly. The PBSs are not

directly involved in the implementation phase but takes over the system after construction and remain responsible for its management, operation and maintenance.

Routine operational activities of PBS such as meter reading, meter checking, bill collection, etc. is run by hired staffs who are responsible to a board of directors consisting of a minimum of 10 and a maximum of 15 members who represent a specific area of PBS. REB appoints General Manager, AGM and some top posts. Initially REB nominates the Board Members, but later on the PBS consumers elect them. Two women advisors are nominated to assist the PBS board. It is desirable that different local societies are represented on the Board of Directors. To follow strict democratic principles in all sphere of governance there is provision in the REB Bye-law, that the PBS needs to hold Annual General Meeting within 18 months of PBS energisation. Annual meeting reflects an adherence to such democratic discipline. Names of the Directors elected in secret ballot by the consumers are declared before the audience. Presentation of different annual report on PBS operations, awarding the highest bill-payees and answering the question placed before the meeting for improvement of the overall system and entertaining complaints made by the consumers are salient features of the AGM. Another important aspect of the meeting is exhibiting on safe and economic use of power. Election is held successively in areas so that there is mixture of old and new directors to run the PBS smoothly.

3.0 Participation of the poor

In the process of reform and privatization in power sector, the price of electricity will go up. The poor customers will obviously suffer. In Bangladesh eighty percent population live in villages and most of them are below poverty level. REB serves about 13 percent of rural population.

3.1 Participation of the poor and subsidy

The participation of the poor is ensured through cooperative principle. Any consumer in PBS area has to become member of the cooperative. It costs only Taka 20 (US$ 0.40). The installation and other charges for domestic user are nominal, affordable and much less than BPDB charges. The minimum bill for residential consumer in PBS area is Tk. 60, which is also less than PDB area. Consumers are represented in the board of PBS by direct vote and governance is democratic. There is no political influence or discrimination.

The initial investment comes from donor and local government. The local currency portion comes from government as grant, i.e. subsidy. The REB buys electricity from BPDB at 33 kV at a special price, which is about 30% less than other customer does. This can also be interpreted as subsidy.

3.2 Rate structure

In this country the electricity rate is inverted, i.e. more you use more you pay. This is different from the tariff of industrialized country. This is indirectly a measure to protect the poor. The electricity tariff of REB is shown in Table-1. The urban (BPDB) and rural (REB) tariff are similar but structure is different. To reduce the peak demand the tariff of BPDB has two

structures, one is flat rate and other is two part time of day tariff. The BPDB structure has 11 type of consumers whereas REB/PBS has 7 type.

Table-1

Tariff of REB (Dhaka PBS-1)

Consumer Category	Unit Price in Taka
Residential	2.18 (1 to 300 units) 3.43 (301 to 600 units) 4.78 (600+ units)
Charitable Institution	2.85
Irrigation	2.40
Small Industries	3.45
Large Power	3.35
Street Light	3.30
Commercial	4.60

3.3 Payment Mechanism

The terms of condition for lending from government to REB is local currency portion as grant and foreign currency portion with 30 years repayment period including moratorium period for first 5 years. Interest rate is 0.75 percent during moratorium period and 2 percent during repayment period. REB to PBS the local currency portion as interest bearing loan, foreign currency portion same as government to REB except the interest rate is 3 percent. The lending rate from government to BPDB is 8 percent.

3.4 Benefit to the poor

A recent survey [3] has sown (Table -2) that financial condition and economic activities of the poor villagers has increased after electrification. According to the survey, average monthly income for the users increased by Tk. 804 due to additional economic activities after electrification. Average monthly income of users ranged from Tk. 200 or less at the minimum to Tk. 2,000 or more at the maximum in the same PBS. Thus it can be said that different sections of the society can take the advantage of electrification at various extent to improve their economic condition.

Table –2

Change in financial condition and economic activity

Changes after Electrification	% of Users				
	Feni PBS	Noakhali PBS	Laxmipur PBS	Patuakhali PBS	All PBSs combined
Improved Economic condition	20.50	74.00	25.50	14.00	33.5
Increased Economic Activity	13.50	25.00	23.50	13.50	22.0

Living standards of large section of the rural poor improved following electrification. This is depicted in Table-3.

Table –3

Standard of living

	% of Users				
	Feni PBS	Noakhali PBS	Laxmipur PBS	Patuakhali PBS	All PBSs combined
Better living condition	22.11	64.50	21.50	15.50	30.00
Improved health status	11.00	89.50	85.00	67.50	63.25

4.0 Success story

The public utility is plunged very high revenue losses, i.e. up to 40 percent system loss, whereas some PBSs are making profit. How could it be possible?

The cooperative model is a story of success. The success is due to:

i) The system is technically sound
ii) Its overall operation is transparent
iii) There is accountability
iv) Pricing is just and is constantly monitored.

In the construction phase, REB ensures the quality and technical soundness of its distribution network. Future expansion has to be economically justified and they have some thumb rules. These are discussed in Appendix A.

The operation of PBS is transparent and there is accountability in every sphere. These are totally absent in public utility. The program is so popular that customer living in outskirts of small town and served by state electricity board (BPDB) are very much interested to be a customer of REB.

4.1 Electricity price and system loss

To protect the poor pricing must be just and revenue loss must be bare minimum. Otherwise cooperative principle will fail. The pricing of electricity is reasonable and affordable. The minimum charge is Tk. 60. To monitor the pricing PTA and MIS are used. System loss, nothing but merely theft of electricity, is kept to a bare minimum.

Introduction of Performance Target Agreement (PTA) in the year 1990 on the basis of key ratio trend analysis information is an important step in improving the operational and management performance of PBS. Its introduction has contributed largely in establishing accountability and result oriented performance for the PBS. Another financial management tool is Management Information System (MIS) statement published monthly by the regulator. This statement [4] shows the monthly technical and financial standing of all the cooperatives in the country. This

tool is very useful for the management to monitor and evaluate the technical and financial performance.

The price of electricity is different for different PBS. For every PBS the regulator, i.e. the Board, fixes the rate. This is done in late June and is adjusted in January next year. The 23 component of PTA [4] is the basis for fixing the unit price of electricity. REB fixes these parameter values. In PTA the basis for calculation of these parameters like debt service coverage, equity status, operation and maintenance expenses, etc. are shown in details for all the PBSs. From these detail calculations the breakeven analysis is done. There is a simpler version [6] of PTA, which is much easier to understand and implement.

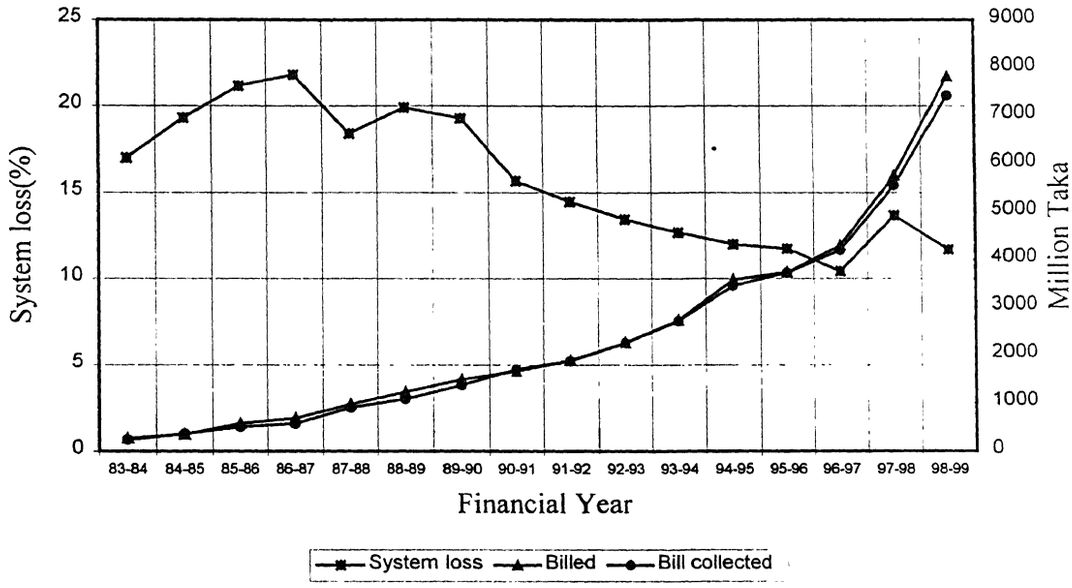


Fig.1. System loss and revenue collection

Pilferage of electricity, which is the biggest problem of power supply authorities in the country, is well managed in PBS. This is adjusted under system loss. Sometimes system loss is divided in two categories, technical and non-technical. Pilferage falls under non-technical losses. All the power supply authorities run in losses due to this pilferage losses. But REB and PBS have managed this very efficiently and all affords are made to keep it minimum. This loss is distributed among the consumers, so it is not revenue loss. The introduction of quantum meter to monitor system performance is a valuable mechanism to reduce system loss. These microprocessor controlled quantum meters are placed at every major feeder, so that energy input and outputs can be compared. There is check and balance in meter reading, bill writing and bill payment. Electricity meter readers are constantly rotated and changed places. The bill writers are invariably female. Due to social composition of villages they are not very mobile. Moreover, every single person of the system understands that their bonus/incentive depends on their collective performance. And there is transparency and accountability in these cooperatives.

which is non-existing in power utilities. Moreover, bill payment facility is adequate and the process is easy. Bill payment in zonal offices is also possible. There is also a user friendly "one point" customer service. Although the billing is done manual, the bill collection rate is high (95%). Very soon they will switch to computerization. More details are shown in appendix A.

4.2 Investment in rural generation

The investment [7] in PBS are shown in Fig. 2. The curve shows that the local investment is increasing. Since the local investment is going up, the system is progressing to be self-sufficient. So the conclusion can be drawn that this sector is making profit and becoming trustworthy to people and government. Recently REB has investing in power generation. In Rural Power Company, a private generation company, they are the major shareholder. Moreover, to serve their own consumers, they are building small power stations in PBS area.

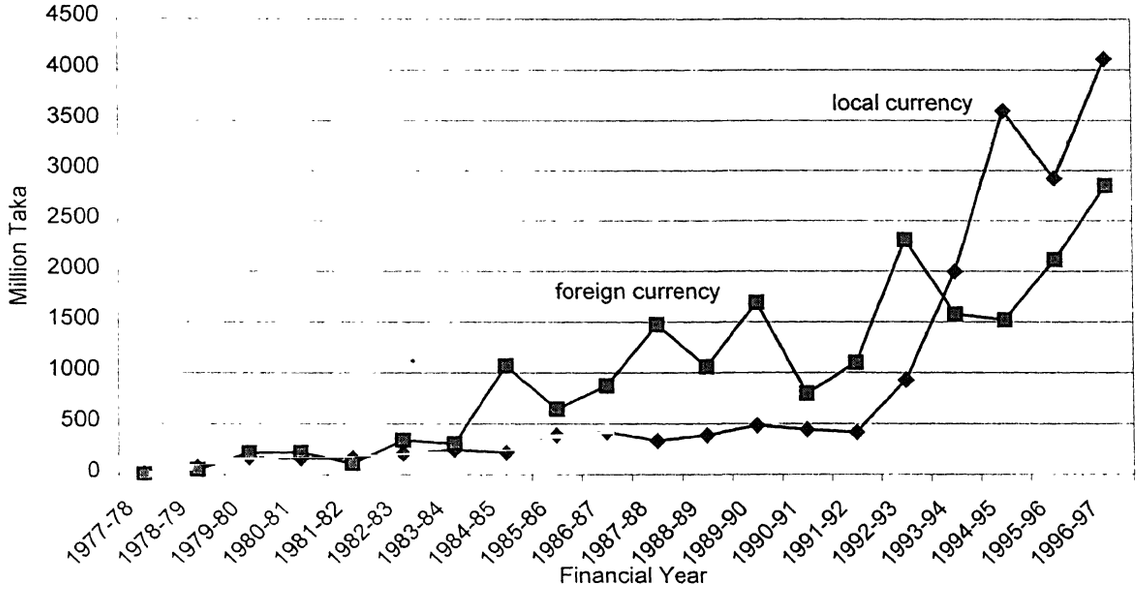


Fig. 2 Year-wise investment in Rural Electrification Program

4.0 Conclusions and recommendations

The rural power cooperative is successful and popular among consumers. Poor consumers' participation is ensured through cooperative principle. The model is discussed in details in this paper. The model may be adopted in neighboring countries, as the socio-economic condition is similar.

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[1] The Rural Electrification Board Ordinance, 1977, The Bangladesh Gazette, Extraordinary, October 31, 1977.

[2] National Energy Policy, The Bangladesh Gazette, Jan 15, 1996.

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[4] Management Information System (MIS), May, 2000, Directorate of Finance, Rural Electrification Board, Dhaka.

[5] Performance Target Agreement (PTA), FY 1995-96, Directorate of Finance, Rural Electrification Board, Dhaka.

[6] Shahidul I. Khan, "Social Aspects of Infrastructure Reform-Regional Case Study-Bangladesh Rural Power Cooperatives", presented at SAFIR Core Training Course, February 7-18, 2000 at Agra, India.

[7] Annual Report 1996-97, Rural Electrification Board, Dhaka, Bangladesh.

Appendix A

REB and PBS organizational structure, management and operation

A board consisting of one chairman and three full time members (member finance, member engineering and member PBS & training) manages REB.

The Chairman- The chairman is the chief executive of the board and responsible for the overall development, management, and administration of REB. He plans, organizes, directs, coordinates and control overall REB program and administration through appropriate delegation wherever needed, to the Member (Engg), Member (Finance), Member (PBS & training) and other officers. He monitors progress and takes appropriate steps, if needed to achieve the organized tasks in consultation with appropriate authority of the government. He also exercises direct control over two directorates and secretariat. The function of the secretariat and two directorates are as follows:

Secretariat: The secretary of the board is responsible for efficient management and administration of the board secretariat and board affairs and such other responsibilities as assigned to him by the chairman.

Program Planning: The director of program planning is responsible for overall program planning evaluation, management and information service activities of REB. This includes comprehensive planning for each phase of the rural electrification program, REB corporate planning, studies of proposed PBS coordination with PBS donors to ensure continuing adequate financing and coordination with concerned Bangladesh Government Agencies to obtain necessary approval.

Personnel and administration: The director of personnel and administration is responsible for appointment, transfer, posting, promotion of officer & employee, discipline, personal records and also responsible for preparation and keeping of the seniority list of the officers & employees of the board.

Member Finance – The member finance is responsible to the chairman and the board for the financial management and operations. The main responsibilities are financial planning, REB budget and procurement of equipment and materials, PBS loans accounting system, audit and all kind of financial reports. The member is responsible for the directorates placed under him in the REB establishment.

Member Engineering – The member Engineering is responsible to the chairman and the board for all engineering activities. The principal responsibilities of the member (Engg) are engineering system design for REB/PBS, preparation of the standards and specification for equipment and material, tendering, requisition, customs clearance, inspection, storage, issue and movement of line and building equipment and materials PBS feasibility, power supply, operation, maintenance and repair of major equipment. There are two chief engineers under member of engineering.

Member PBS & Training – The member PBS & training) is responsible to the chairman and the Board for the development, organizing and the establishment of the PBSs. He is also responsible

to develop REB training program for orientation and training of all levels of officers and employees in all disciplines of the rural electrification program. The member ensures his functions through the executive director who controls and monitors the PBS Management and Development Directorates (north, south and central zones).

Construction program implementation:

REB has allowed the establishment and utilization of two private service sectors, the Engineering Consultant (EC) and the Electrical Construction Contractor (CC). These private sector activities have been a major factor in the successful construction program. REB, being a government agency, has a policy that frequently rotates employees between positions and departments. One of the results of this policy is the loss of expertise at REB on a periodic basis. The service organizations, being non-governmental, do not have the same rotation policy, so their staffs have become very proficient in their respective areas. The EC has trained his staff to prepare the necessary construction documents and inspect the construction to be certain that all the standards are maintained. The CC has trained his crews to construct the lines in an efficient and responsive manner. Had REB not allowed private sector development in these areas, the program likely would have been much less successful in its development to date.

Construction inspection and quality assurance:

The responsibility for construction inspection has been placed on the EC with final acceptance by the PBS. Periodically, NRECA has been invited to make spot inspections and generally has found that the line construction is accomplished satisfactorily. However, in some cases it was evident that the inspector may not have been to every job as some of the line construction was not up to the normal standard (improper installation of ground rods, anchors, etc.). The REB and the CC inventory the final project prior to the transfer to the PBS on an as-inventoried basis. The surplus materials are supposed to be delivered to the PBS, but it is not evident that the tracking of this material is adequate.

Material handling and control:

Both REB and NRECA expressed concern about the existing material-handling system. The new computer program for material inventory records can track material by item, by donor, by warehouse and staging area, and by contractor. REB should be able to maintain much better control of materials once this system is fully in place. REB emphasized that, while there are more than 400 items of materials in stock, 20 percent of the items account for 80 percent of the value and it may not be necessary to control all items to the same extent.

System intensification:

This program is in two parts: the BPDB property transfers and short system extensions from the existing distributing feeders. Approximately 20 percent of the budgeted line additions are allocated to this program. The PBS has some latitude in short line extensions (up to 0.5 km). The PBS can have the EC apply the feasibility criteria and, if the extension is feasible, it is submitted to the REB Supervising Engineer for approval. Once approval is obtained, the project can be

designed and constructed. For short, one or two pole projects, PBS linemen may be used rather than the REB CC. There were comments that it was needed to recondition the transferred facilities and the lack of material available to do so. Typically, where PBS takes over a BPDB facility, the transferred system is substandard and PBS must conform the transferred facilities to its standards.

System monitoring and performance standards:

REB and the PBS have excellent record in reducing losses and improving energy sales. REB and the donors have developed Performance Target Agreements (PTAs) to assess the "success" of the program and areas where future improvement should be achieved. Many of these PTAs are used to determine the incentives given to the PBS managers. The PBS should be reviewed on a systematic basis to be certain the desired objectives are being achieved.

Several PBS general managers expressed that some of the PTAs as not true measurements of efficiency of system operations. For example, when new areas are added to an existing PBS from a BPDB system, it may take two to three years to reduce the non-technical losses of the added system to the level of the PBS. The PTA, by continuing to target lower losses, penalize the PBS in the short term, even though in the longer term, its viability has been enhanced by improving the load and revenue density. Also, y taking on the BPDB facilities, the PBS will incur additional renovation and maintenance costs, which have a short term, negative impact on the PTA ratios.

Management of the PBSs

The institutional framework, with REB as a central institution providing financial, institutional, technical and procurement support to the PBS, organized as co-operatives but working as regional institutions. All the function of PBS operation and management are regulated by PBS Bye-laws, service rules, PBS instructions, PBS manuals etc. The PBS instructions for PBS activities are given below.

PBS instruction – 100 series- Engineering and Technical
PBS instruction – 200 series- Financial
PBS instruction – 300 series- Management

There are about 141 REB instructions presently in use in the PBS covering all the three group of activities. Besides the PBS instructions, PBS manuals are also used for Engineering Design, House wiring, accounting procedure and other activities.

REB has established an effective monitoring procedure. PBS reports its financial, operational and management performance through this form to REB Monitoring Cell every month. Monitoring Cell in its turn has developed a Management Information System (MIS), based on the information of PBS 550 Form. MIS published every month is an important aid for the REB management to monitor PBS management and operation. NRECA, consultant of REB also publishes quarterly report covering a broad area of REB and PBS activities and performance.

Consumer accounting

Meter reading: Meter reading records appear adequate and properly filed in booklets for easy retrieval and tracing. Meter readings are being performed by individuals contracted by PBSs. The contract covers a three-year period renewable every year. Each meter reader is assigned to read 2,000 meters each month covering several routes. Any observations made during meter readings (such as stuck meters, broken covers, wrong serial numbers, etc.) are noted and reported. For internal control, meter readers' route assignments are rotated every three months. In addition, as claimed during the interviews, messengers are required to check on the readings by comparing the readings in the bill against the meters when electric bills are delivered to the consumers. Officers of the PBS as assigned by the general manager do meter reading for industrial and irrigation consumers. Computation of the kWh usage is done manually based on the reading sheets.

Billing: Billing is done manually by billing assistants. Each billing assistant is assigned to prepare 1,500 bills each month. In addition to bill preparation, billing assistants are responsible for updating the consumer subsidiary ledgers, which contain details of meter readings, kWh usage, bills issued, collections and account balances. In spite of the manual process of bill preparation and other billing tasks, bills are prepared promptly. Due to the volume of billing transactions, all the PBSs are clamoring for a computerized billing system for which plans are underway.

Collections: PBS messengers deliver Bills to the consumers. Bills are due twenty days from date of the bill. Consumers are instructed to pay their electric bills direct to the PBS's Head Office, district offices and authorized collection banks. Each PBS has a number of collection banks. Collection banks are required to report collections on a weekly basis, Collections made by the banks are deposited to the PBS's general fund account maintained in the bank.

Disconnection and reconnection: Electric service is disconnected if the consumer does not pay the electric bill within three months. The three months' allowance coincides with the guarantee deposit required from the consumers upon connection which equals three months' estimated consumption. Disconnected consumers can be reconnected upon payment of disconnection and reconnection fees, which vary per consumer type.

Comparison of different PBSs

It is found that some of the PBSs are making profit while the other power utilities incur losses. The reason behind it is its organizational structure, management, precise monitoring and accountability. The REB officials of different directorates closely monitor the activities of the PBSs. This monitoring is done only on advisory basis. Such Monitoring includes performance and operation of the PBS.

PBSs earn revenue (Table-A) by selling power to the consumers through their distribution networks. Revenue earning by the PBS depends on the number of consumers as well as the types of consumers. As the electricity rate for domestic use is lower (Table-1) than for non-domestic use, PBS with high ratio of domestic sales earn low revenue. So far as the number of consumers

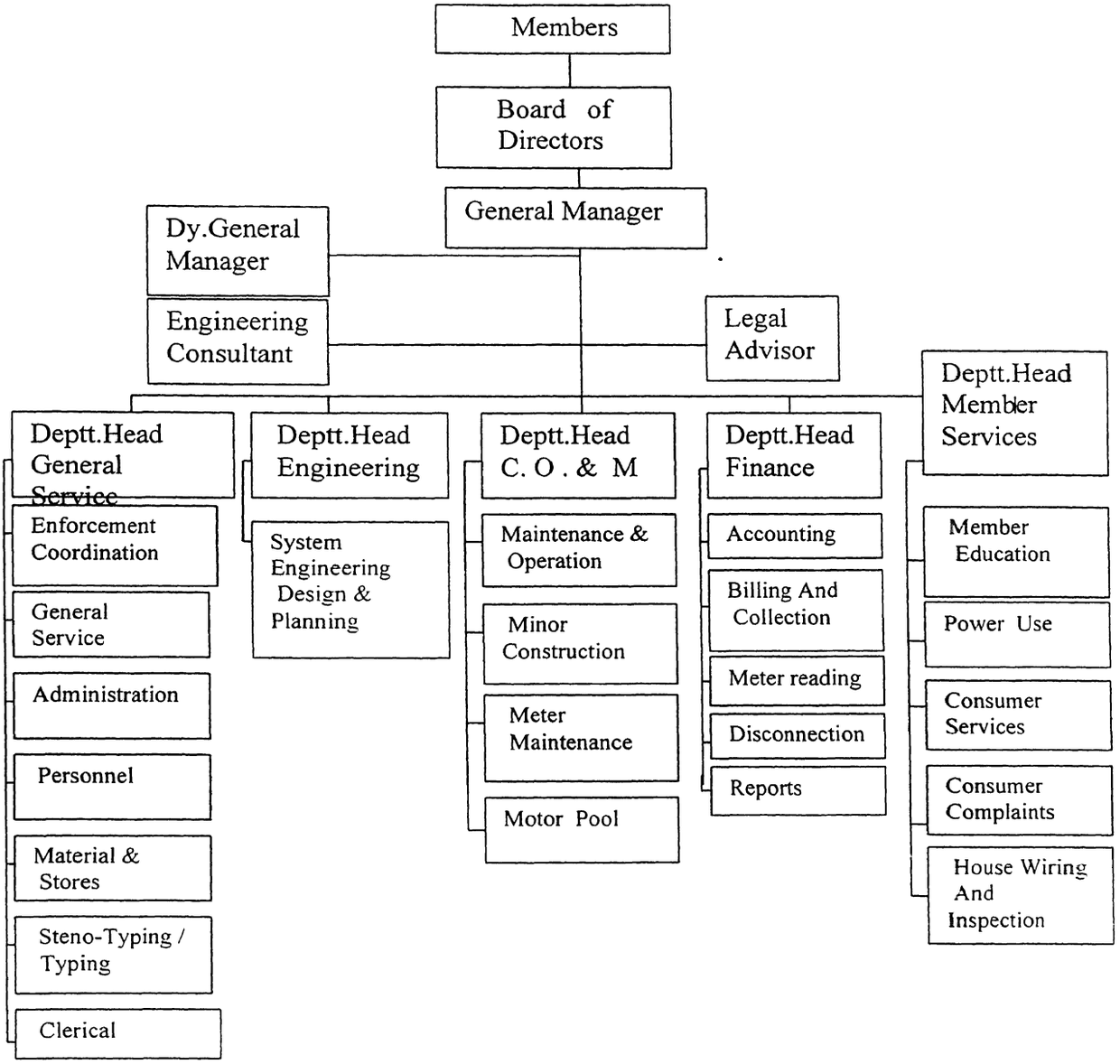
are concerned, both Feni PBS and Dhaka PBS-1 with 70590 and 61779 connections respectively are in good position. Under Laxmipur PBS, Noakhali PBS and Patuakhali PBS the numbers of consumers are 32092, 51531 and 22521 respectively.

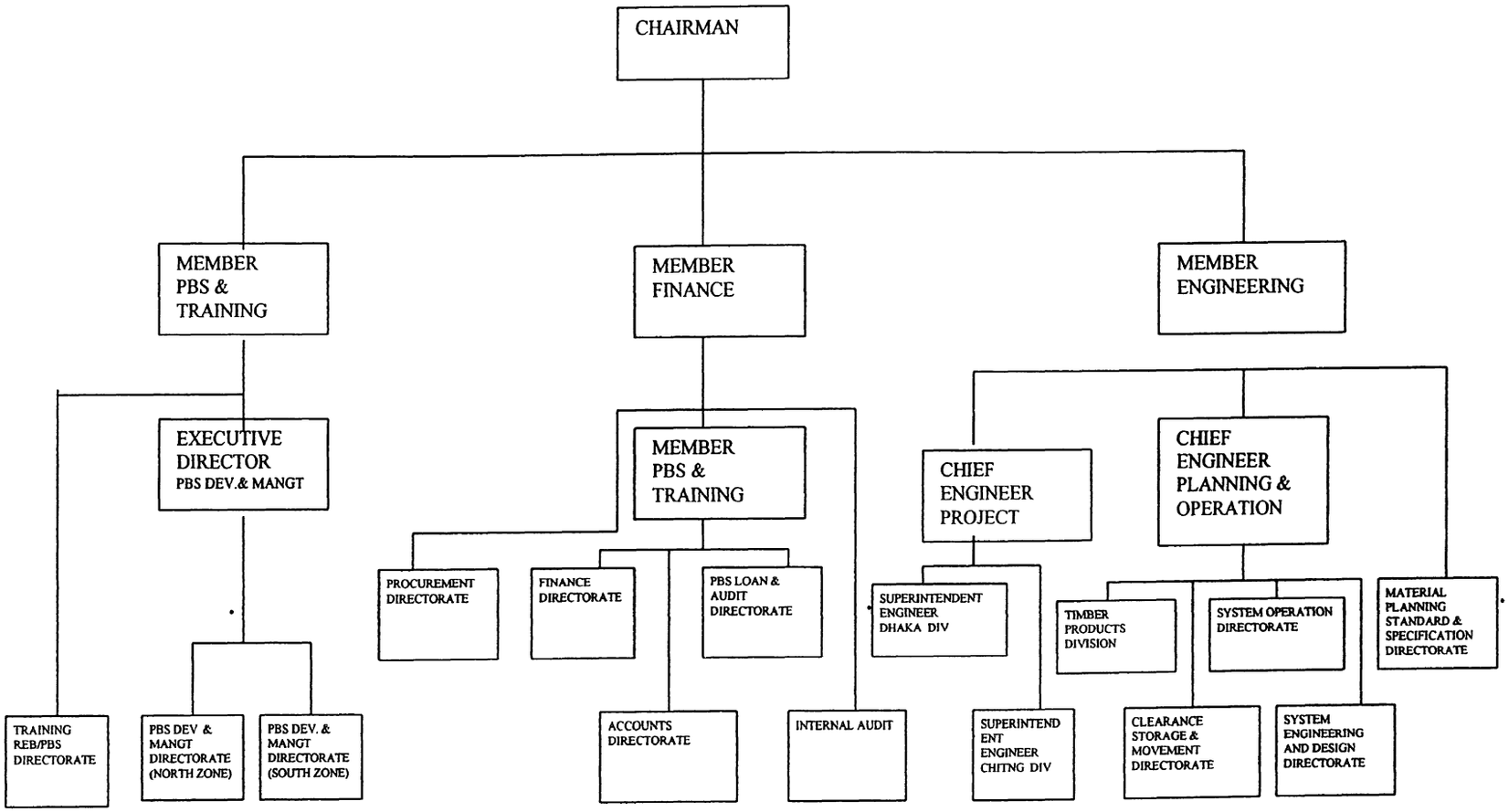
With regard to the size of consumers, PBSs are not directly comparable because of their varying energisation dates. Consumer per Km of lines, however, provides a better indicator for comparison. Consumer per Km are 31 for Dhaka PBS-1, 32 for Feni PBS, 28 for Noakhali PBS, 23 for Laxmipur PBS and 16 for Potuakhali PBS

Table-A
Comparison of Bills

Name of the PBS	Amount Billed,10^6 Taka (12 month average)	Cost of Power Purchased,10^6 Taka (12 month average)
Dhaka PBS-1	68.640	44.449
Feni	11.455	7.286
Laxmipur	5.001	2.942
Noakhali	7.697	4.830
Patuakhali	2.963	1.821

ORGANIZATION CHART OF A PBS




CHAIRMAN
MEMBER PBS & TRAINING
MEMBER FINANCE
MEMBER ENGINEERING
EXECUTIVE DIRECTOR PBS DEV.& MANGT
MEMBER PBS & TRAINING
CHIEF ENGINEER PROJECT
CHIEF ENGINEER PLANNING & OPERATION
PROCUREMENT DIRECTORATE
FINANCE DIRECTORATE
PBS LOAN & AUDIT DIRECTORATE
SUPERINTENDENT ENGINEER DHAKA DIV
TIMBER PRODUCTS DIVISION
SYSTEM OPERATION DIRECTORATE
MATERIAL PLANNING STANDARD & SPECIFICATION DIRECTORATE
TRAINING REB/PBS DIRECTORATE
PBS DEV & MANGT DIRECTORATE (NORTH ZONE)
PBS DEV. & MANGT DIRECTORATE (SOUTH ZONE)
ACCOUNTS DIRECTORATE
INTERNAL AUDIT
SUPERINTEND ENT ENGINEER CHITNG DIV
CLEARANCE STORAGE & MOVEMENT DIRECTORATE
SYSTEM ENGINEERING AND DESIGN DIRECTORATE

PROTECTING THE POOR IN THE ERA OF UTILITY PRIVATIZATION

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Professor and Head
Department of Electrical and Electronic Engineering
Bangladesh University of Engineering and Technology
Dhaka-1000, Bangladesh

ABSTRACT

•Price of Electricity
•How to protect the poor customers
•Electricity cooperative model

1.0 Introduction

- Bangladesh power Development Board (BPDB)
- Rural Electrification Board (REB)
- Rural Electric Cooperative (Palli Biddut Samity)
- 55 PBS, 13 percent consumers in 44 percent electrified villages
- Regulator, National Energy Policy, National Energy Agency
- Privatization: Generation, Transmission and Distribution
- Rural Power Company, Khulna Barge Mounted Power Station,
- Power Grid Company of Bangladesh (PGCB)
- Dhaka Electric Supply Authority (DESA)
- Dhaka Electric Supply Company (DESCO)
- Khulna Electric Supply

2.0 Rural Power Cooperative Model

- Rural Electrification Board

- Rural Power Cooperative
  Palli Biddut Samity (PBS)
  Area, rural participation, administration, operation and maintenance

3.0 Protecting the poor

•Bangladesh Population, 128 million, 80% rural , 13% served by REB
•Participation of the poor
-through cooperative system
membership Tk. 20 (40 c)
affordable for poor (min. charge Tk. 60)
run by consumers/members
-government subsidy initially
later self sustaining
buys electricity at bulk-discount rate

•Rate structure

Tariff of REB (Dhaka PBS-1)

Consumer Category	Unit Price in Taka
Residential	2.18 (1 to 300 units)
	3.43 (301 to 600 units)
	4.78 (600+ units)
Charitable Institution	2.85
Irrigation	2.40
Small Industries	3.45
Large Power	3.35
Street Light	3.30
Commercial	4.60

•Payment mechanism
-Government to REB local currency as grant, f.c. portion soft loan
-REB to PBS all interest bearing loan

Benefits to the poor

Change in financial condition and economic activity

Changes after Electrification	% of Users				
	Feni	Noakhali	Laxmipur	Patuakhali	All PBSs
Improved Economic condition	20.50	74.00	25.50	14.00	33.5
Increased Economic Activity	13.50	25.00	23.50	13.50	22.0

Standard of living

	% of Users				
	Feni	Noakhali	Laxmipur	Patuakhali	All PBSs
Better living condition	22.11	64.50	21.50	15.50	30.00
Improved health status	11.00	89.50	85.00	67.50	63.25

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The success is due to:

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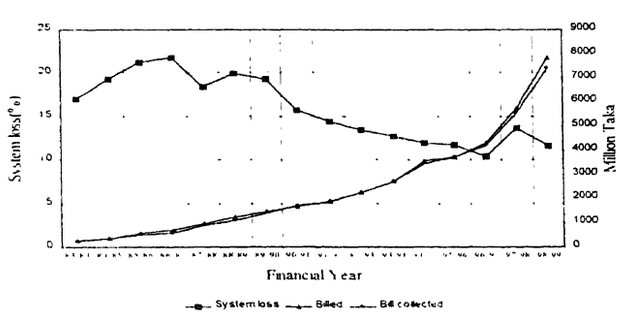


Fig 1 System loss and revenue collection

Investment in rural electrification

•local investment going up

•making profit

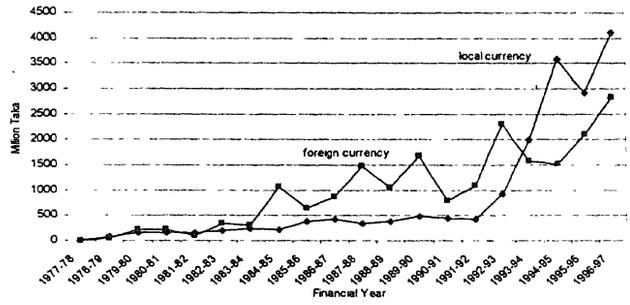


Fig.2 Year wise investment in Rural Electrification program

5.0 Conclusions

Rural power cooperative is poor oriented

It model is successful

The model may be adopted in neighboring countries with similar socio-economic condition

Development and Democracy:
The Core Social and Political Concerns

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The Context of Reforms

- The Mainstream Perspective on Crisis, Diagnosis, and Prescription
- Tracing the Roots of Financial Crisis
  - The Crisis of Performance
  - The Crisis of Accountability OR
    The Crisis of Governance

The Power Sector Crisis is Essentially a 'Political' Crisis

Development: The Core Social Concern

- Socially Disadvantaged Sections are also Asset-Less Sections
- Energy (Electricity) & Water:
  Inputs Critical for Asset-Less to Climb the Development Ladder
- Inadequacy of the Life-Line Tariff

Danger of Reforms Restricting Development

Democracy: The Core Political Concern

- Electricity: An Input for Development: Hence, a Matter Within 'Public Realm'
- Reforms Take Electricity out of the Public Realm
  - By Treating Electricity Primarily as a Commodity (+Object of Charity)
  - By Substituting the State with Techno-centric Regulatory Institutions
- Limiting Capacity of People to Influence Decision-Making in This Public Affair

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Danger of Reforms Restricting Democracy

SESSION 9
ROLE OF GOVERNMENT SUPPORT FOR PRIVATIZATION: RISK SHARING & INCENTIVES



Power Sector Reform and Privatization
A High-Level Policy Seminar for the South Asia Region

May 15-17, 2000 – Bangalore, India

Government Support, Risk Sharing and Guarantees

Mansoor Dailami
World Bank Institute

MD

Framework for Understanding Role of Government

Features of private investment in power infrastructure

- Investments are typically up-front
  - → High degree of relationship specificity
  - → Risky revenue streams reaching many years into the future
- Investments are distinguished by pattern of risks over time
  - → High concentration of risks in project's early stages
  - → Readily identifiable risks once project is completed
- Most major projects are financed predominantly through foreign capital

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Incentives/Objectives of Project Sponsors

- Reasonable return on investment:

  ROE = *f*(debt maturity, tariff, leverage ratio, government support)

- Limited recourse structure

  (only if the investment materializes)

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Incentives/Objectives of Creditors

- Good credit risk, i.e. sufficient and secure cash flows
- Key indicators
  - → Debt service coverage ratio greater than a specified level
  - → Interest coverage ratio greater than a specified level
- Credit enhancement, government support and guarantees

MD

Incentives/Objectives of the Government

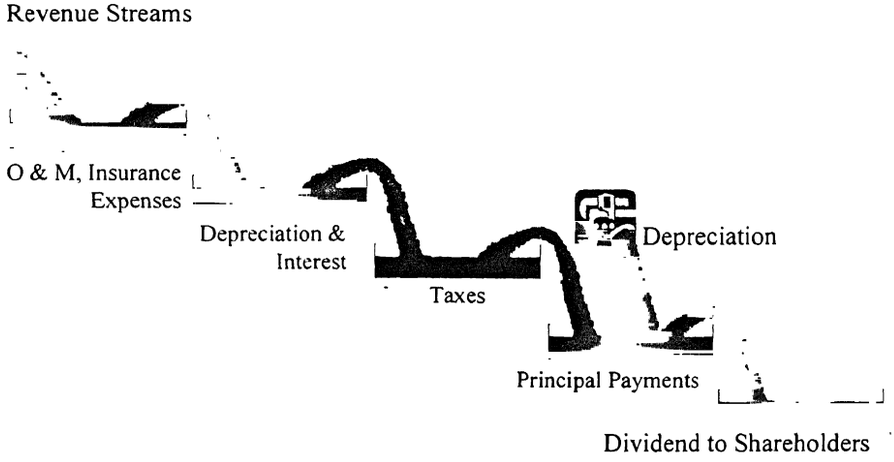
- Serve Public Interest
- Low Tariff Rate
- Quality of Services
- Future Tax Revenues

(only if the investment materializes)

MD

Project Financing: Uses of Cash Flows

⇒ Governed by a hierarchy of claims and by the prevailing tax codes



MD

Forms of Government Support

- Tax incentives
- Subsidized loans
- Contribution to Equity or Subordinated Debt
- Guarantees
- Buyout

Rationale for Government Support

- Perception of high risk in emerging market economies leads investors to demand high ex ante rates of return
- As a result, tariffs are often higher than before privatization
- Governments find these higher prices to be politically unfeasible:
- Government support enhances the project's financiability
  - → Reduced degree of risk
  - → Brings tariff down to more acceptable levels

MD

Types of Government Guarantees

- **Policy/Political Risk**
  - ⇒ Guarantee of currency convertibility and transferability
- **Financial Market Disruption/Fluctuations**
  - ⇒ Guarantee of exchange rate
  - ⇒ Third-party debt guarantee
- **Market Risk**
  - ⇒ Contractual Obligations of Government Entities
  - ⇒ Guarantee of off-take in power projects

MD

Power Plant Key Parameters

Characteristics of the plant

◆ Capacity (MW):	100
◆ Capacity factor:	84 %
◆ Plant investment cost ($/kw)	955
◆ Plant investment cost ($million)	95.5
◆ Heat rate (BTU/kwh)	10,000

MD

Power Plant Key Parameters

Financial Assumptions

- Capital structure: 70% debt, 30% equity
- Term of debt: 20 years
- Interest rate: 8.5 %
- Income tax rate: 40%

MD

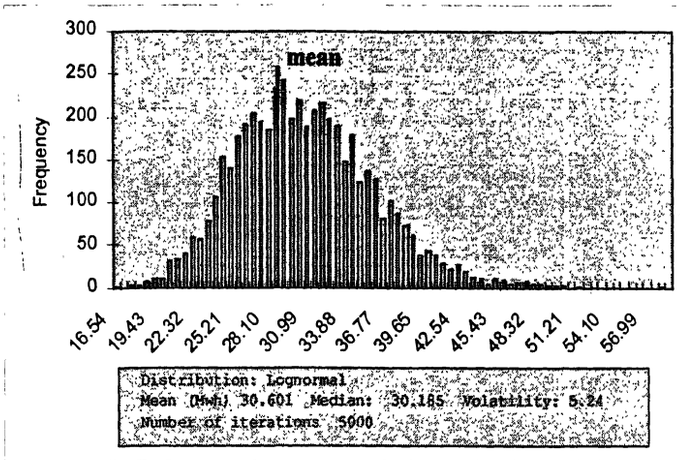
Power Plant Simulation Results
Loan maturity = 20 years

(US$ millions)	2001	2010	2020
Operating Revenue	22.55	29.56	39.91
O & M	2.74	3.60	4.86
Fuel Costs	8.24	12.25	19.02
Debt Service	7.30	7.17	6.86
Interest	5.91	4.28	0.32
Principal	1.39	2.89	6.54
Tax	0	2.06	6.16
Distribution to Equity	4.27	4.48	3.02

ROE = 14.09%

MD

Probability Distribution of Average Tariff Rate



MD

Risk Sharing through Contracts

Risk assumed by the government

Minimum ➡	Partial ➡	Full
◆ **Pure merchant plants**	◆ **Power Marketing Agreement:** tariff determined by market conditions, agreement on off-take	◆ **Power Purchase Agreements** on both tariff and off-take with government guarantee of payment obligations of state utilities

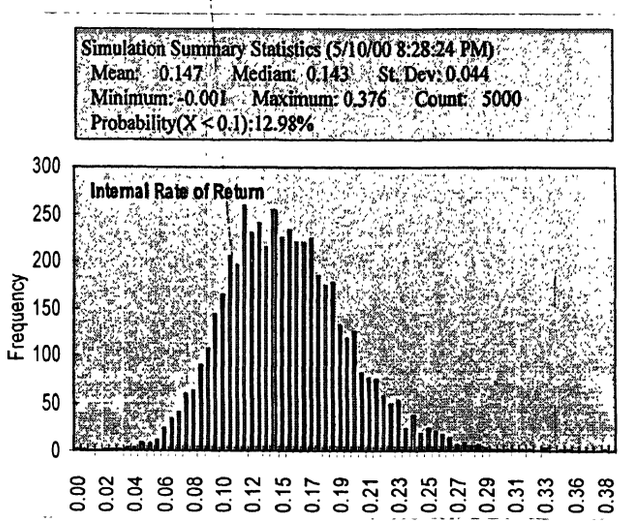
MD

Effect of a 10-Year Tax Holiday

Return on Equity (ROE)	
Base case:	14.7%
First 10 years of project:	15.3%
Last 10 years of project:	17.0%

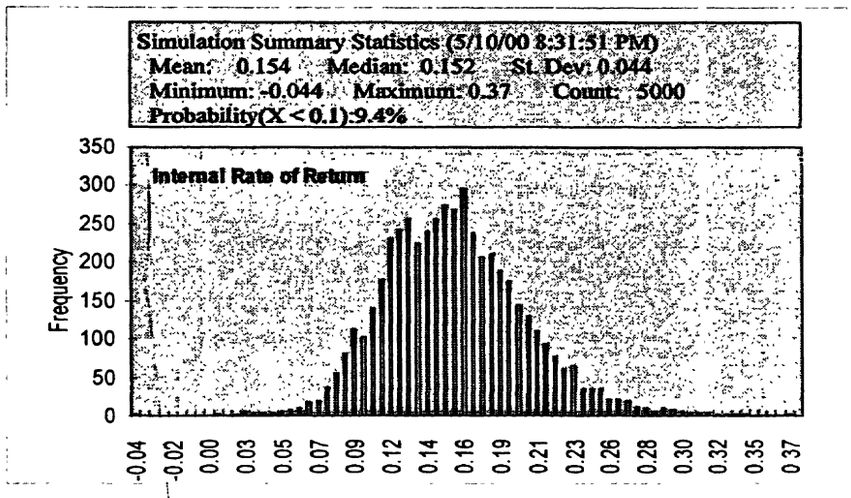
MD

ROE - Base Case



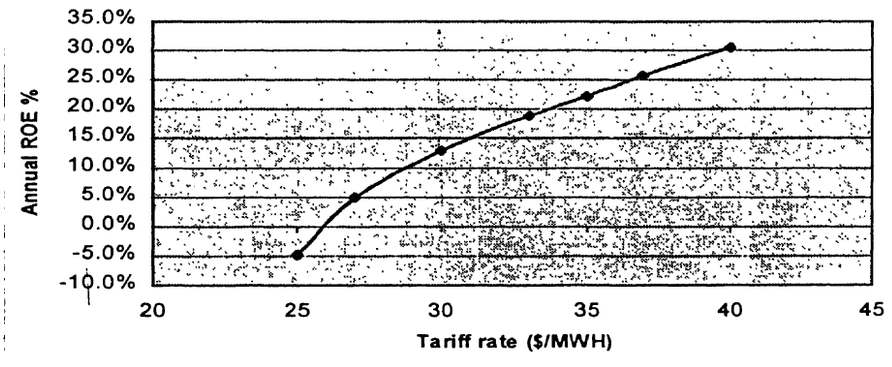
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ROE: Tax Holiday in First 10 Years of Project



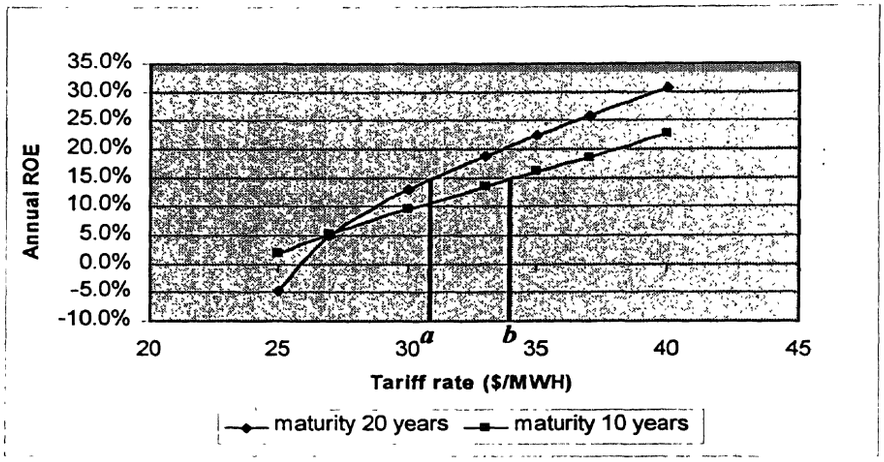
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ROE Depends Critically on the Tariff Rate



MD

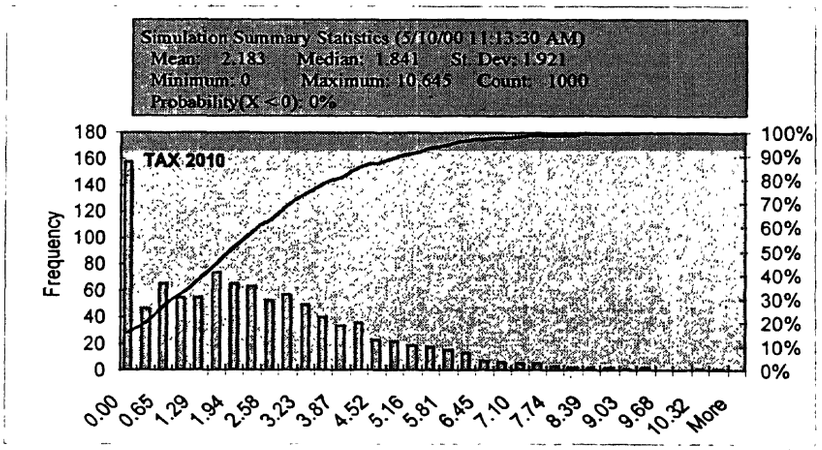
Longer Loan Maturity Means Lower Required Tariff Rates for a Given ROE



MD

Tax Revenue

Risk variable: Tariff, Lognormal Distribution, volatility 5.24

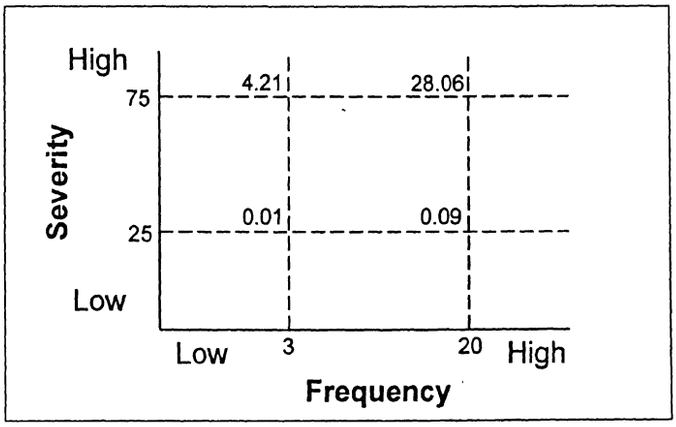


MD

Guaranteeing Credit Risk

Default probability, %	Fair value of guarantee, Per $100 investment	Annual price, $
2	1.87	0.28
3	2.81	0.42
4	3.74	0.56
5	4.68	0.71
6	5.61	0.85
12	11.22	1.69
20	18.71	2.82
30	28.06	4.24
40	37.41	5.65
50	46.76	7.06

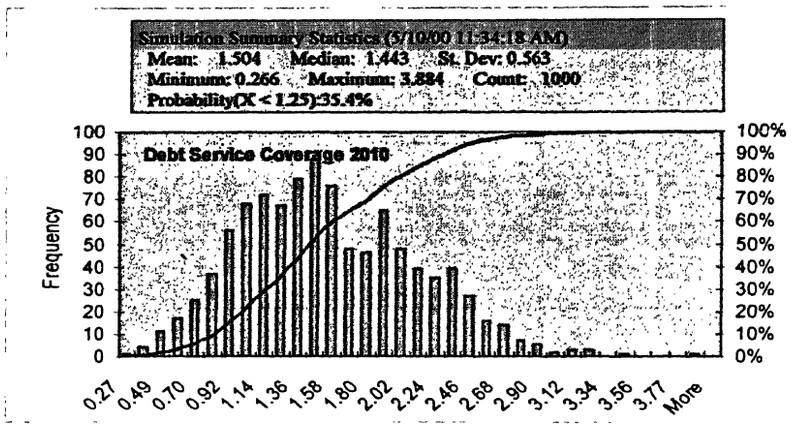
Guaranteeing Credit Risk



MD

Debt Service Coverage Ratio

Risk variable: Tariff, Lognormal Distribution, volatility 5.24



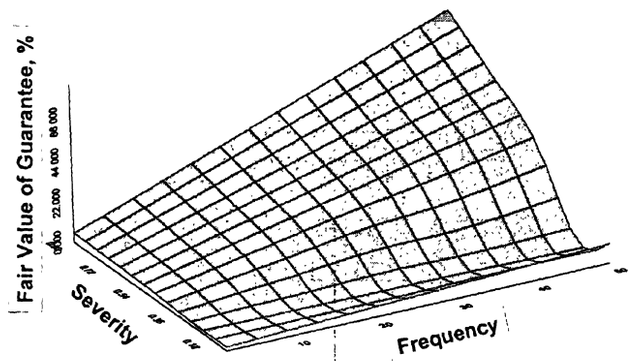
MD

Government Guarantees:

- Fair pricing is important
  - ⇒ Free guarantees imply implicit subsidies
  - ⇒ Such subsidies increase with project risk
- Net benefits of guarantees
  - ⇒ Guarantor can bear the risk better than the investor through diversification and reinsurance

MD

Fair Value of a Guarantee



MD

Gajendra Haldea

Gajendra Haldea is an officer of the Indian Administrative Service (1973). He studied Economics at the University of Rajasthan followed by a professional law degree from the same University. Later, he went for a fellowship at the London School of Economics.

Among a wide range of assignments, he has spent 10 years at the Union Finance Ministry where he was last posted as Joint Secretary (Infrastructure). He has made significant contributions in the evolution and finalization of the framework and policies for privatization of several infrastructure services. His work in the evolution of Power Purchase Agreements in India is widely recognized.

In his different assignments, he has been responsible for dealing with the World Bank, Asian Development Bank and various bilateral developmental agencies such as USAID, CIDA, JICA, etc. and has formulated and negotiated several infrastructure projects with these agencies.

He has served on the Boards of National Thermal Power Corporation, Indian Railways Finance Corporation, Bank of India, Central Bank of Indian besides being a member of several committees on infrastructure.

He has written several papers and reports relating to infrastructure development. He was also a member of the Expert Group constituted by Government of India under the Chairmanship of Dr. Rakesh Mohan for reporting on the development and commercialisation of infrastructure. He is also the author of the Model Concession Agreement for augmenting the capacity of National Highways on DOT basis.

While serving at the union Ministry of Finance, he drafted the Foreign Exchange Management Bill which has since been enacted by the Parliament. Currently, at the request of the Union Power Ministry, he is drafting the Electricity Bill, 2000 aimed at restructuring and rationalizing the power sector in India. The Bill is presently being debated across the country and has received a fairly wide degree of support from different stake-holders and experts.

Fabio Gobbo

Born in Venice in 1947, Professor Gobbo is, since 1998, full Professor of Industrial Organisation at LUISS University – Rome and he has recently been appointed as Chief of the Technical Secretariat of the Italian Ministry of Industry. Prof. Gobbo served as Commissioner of the Italian Competition Authority from 1990 (the year in which it was set up) until 1997. During his term, he gained substantial expertise in the field of antitrust, concerning both the Italian and European Markets. Previously to this appointment, he was a member of three Governmental Commissions established to reform the Italian regulation and price control system. Prof. Gobbo received his degree in Political Science (Economics) from the University of Bologna in 1970 and he began his academic career as a researcher at the Economics and Industrial Policy Centre of the University of Bologna and at the London School of Economics and Political Science. Prof. Gobbo is author of more than a hundred books and scientific essays on a variety of topics ranging from competition and regulation policy, to the control over prices and tariffs of public utilities, the analysis of industrial sectors, the regional and industrial development in Italy and abroad.

LIBERALISATION OF THE ITALIAN ELECTRICITY INDUSTRY

Fabio Gobbo

Bangalore seminar - May 2000

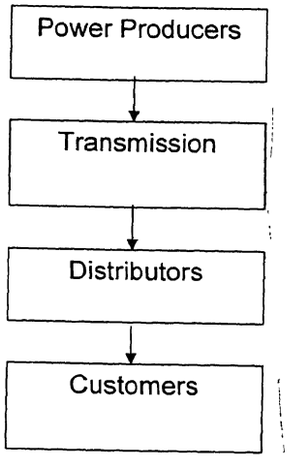
REGULATORY FRAMEWORK

> The old structure of the Italian electricity sector

> The European directive on the internal electricity market - 96/92

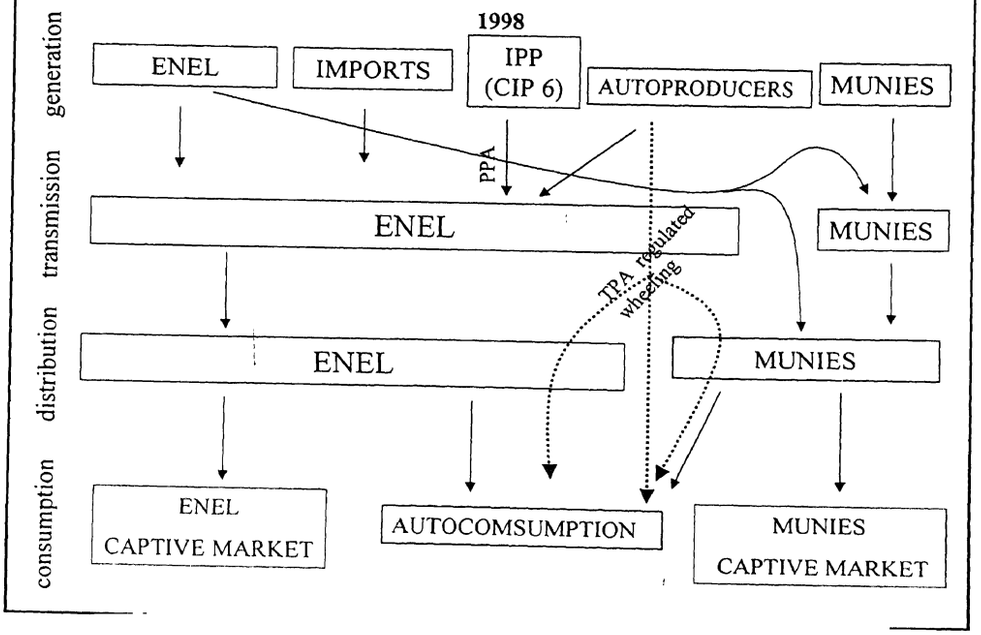
> The Italian electricity law: N° 79/1999

INDUSTRY STRUCTURE BEFORE THE DECREE n° 79/1999



- Other producers could sell electricity only to :
  - Enel under regulated contracts
  - Companies that are part of the same group (self consumption)
- Enel owned and managed most of the transmission grid
- More than one distribution license allowed within same metropolitan area
- Energy sales to all customers at regulated tariffs

THE OLD STRUCTURE



THE EC DIRECTIVE 96/92

Liberalisation of generation:

- authorisation procedure
- tendering procedure

Third party access to the system:

- regulated TPA;
- negotiated TPA;
- Single Buyer System

Integrated undertakings:

- unbundling of accounts for generation, transmission and distribution activities;

Transmission activity:

- unbundling of both management and account;
- new separated company

Eligible clients:

- minimum thresholds of consumption;

THE DECREE N.79/99

Liberalisation of generation:

- authorisation procedure

Third party access to the network:

- mixed system: regulated TPA and Single Buyer

Integrated undertakings:

- vertical disintegration of ENEL and biggest munies

Transmission activity:

- new separated independent company (ISO)

Eligible clients:

- gradually opening of the market (no less than 35% of total consumption in January 2000)

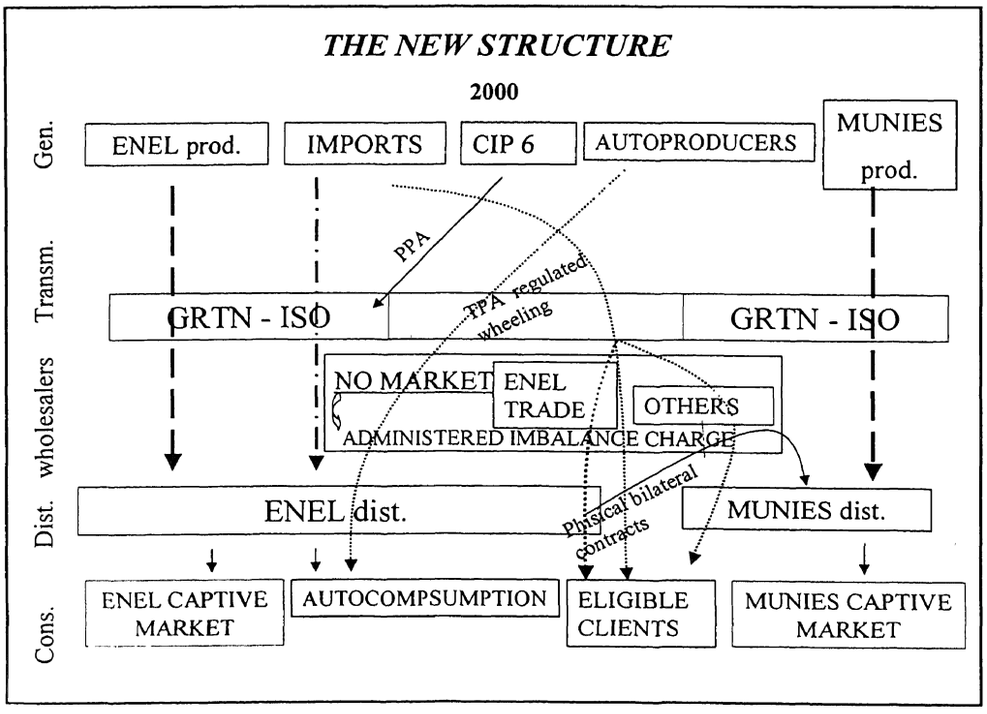
and

Market operator:

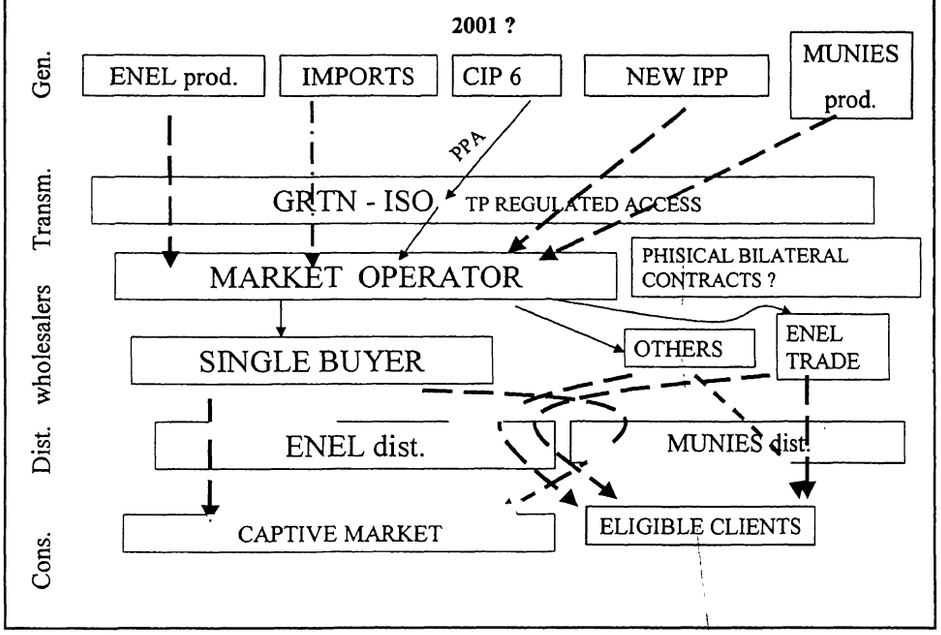
- A new company - owned by the ISO - to run the - non mandatory - wholesale market (from 2001)

Promotion of competition at the supply level:

- Enel has been obliged to sell 15.000 mw of capacity by 2003
- None can produce or import - with effect from 2003 - more than 50% of electricity produced and imported



THE NEW STRUCTURE



ISSUES TO BE SOLVED

(i) competition at generation stage

- sale of 15,000 MW as soon as possible
- simplified administrative procedures for revamped and new plants
- increase of interconnection capacity

but ENEL will still be the dominant operator

ISSUES TO BE SOLVED

(ii) network access

- •rules to allow non discriminatory access
- •new players
  - > Market Operator
  - > Single Buyer

ISSUES TO BE SOLVED

(iii) downstream market

- •threshold for eligible clients
- •possible further lowering of the threshold (100 kWh)

but it would be necessary more competition upstream at generation stage

Role of Government

Gajendra Haldea

ROLE OF GOVERNMENT SUPPORT

- Holistic policy for privatisation.
- Evolution of enabling legal framework.
- Independent regulator.
- Comprehensive regulatory framework.
- Preparation of model documentation.
- Consultative approach.
- Risk-sharing.

RISK SHARING

Unbundling and Allocation of Risks

- Non-political risks.
- Construction risks.
- Operation risks.
- Other commercial risks.
- Indirect political risks.
- Political risks.
- Payment risks.
- Forex risks.

GUARANTEES

- Only to cover unmanageable risks, i.e.
  - Direct political risks
  - Indirect political risks
- Cover payment risks where:
  - Company owned by Govt; and
  - Has a weak balance sheet.

Nature of Guarantees

- Guarantees should be limited.
- Disincentives for invoking guarantees.
- Dispersal and sharing of risks among stakeholders.
- Gradual withdrawal in favour of market forces.

INDIAN CONTEXT

- Sovereign guarantee for IPPs.
- State guarantees.
- Escrow cover.

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POWER SECTOR REFORM AND PRIVATISATION



World Bank Institute

World Bank South Asia Region

in collaboration with

Tata Energy Research Institute

Power Ministries of Member Countries

and

State Bank of India

Infrastructure Development Financing Company

ICICI, Ltd

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THE ROLE OF GOVERNMENT IN MANAGING THE FUTURE IN POWER SECTOR DEVELOPMENT

By Robert J Phillips

Partner CMS Cameron McKenna

CMS Cameron McKenna

TOWARDS SECURITY OF SUPPLY

- improve existing generation plant
- match capacity and demand through better transmission links
- increase installed capacity
- the private sector can provide management techniques and funds
- investment requires revenue streams and a degree of certainty

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PRIVATIZATION MASTER PLAN - STAGE 1

Generation

Power Purchaser, System Operation and Transmission

Distribution/Retail Supply

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(cms)

PRIVATIZATION MASTER PLAN - STAGE II

Competitive Generation Companies (Gencos)

Single Buyer/Wholesale Market

ISO/Transmission Company

Distribution (DISCOs)

[Retail Supply]

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(cms)

- If single buyer model does not deliver optimum value then move to competition
- Issue for DISCOs if large industrial consumers can purchase from generators
- Arrangements can allow for future competitive market(s)

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ISSUES TO BE RESOLVED (1)

- The Privatization Master Plan provides high level roadmap
- Many issues, however, remain to be resolved, e.g:
  - How should stranded costs be dealt with?
  - How should the existing PPAs be dealt with?
  - How should the various entities in the competitive market be grouped (ISO, Gridco, Market Organization, Generators, Discos, Retailers, Traders, etc.)?
  - What should be the form of the wholesale market?
  - Should retail competition be set up? When should it be introduced?
  - How should state owned existing generation assets be dealt with?

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ISSUES TO BE RESOLVED (2)

Government should set the agenda -

The private sector needs some form of certainty - a well thought out programme engenders confidence not uncertainty

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ISSUES TO BE RESOLVED (3)

- Does India want to become competitive in terms of world markets - this means competitive with imports not just exports
- How does it achieve a competitive position:
  - domestic investment
  - international investment
  - international expertise
  - domestic expertise

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THE INTERNATIONAL INVESTMENT MARKET

The electricity market restructurings in the US and Europe offer substantial opportunities for investment. India is not only in competition with other south and south east Asian countries but also the western countries.

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GENERATION

Some state electricity boards have already entered into long term power purchase agreements

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EXISTING IPP CONTRACTS

- Existing contracts may cause problems because
  - they are too expensive
  - they do not fit into the new market
- Renegotiating the price is difficult - what does the utility have to offer?
- Abrogation may be an implicit threat - this will scare away investors

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DO EXISTING IPP CONTRACTS FIT IN? (1)

- Renegotiation
  - IPPs will only agree to amendments if their lenders agree and returns on investment are not reduced
- Change in law
  - treats all IPPS the same
  - does not require IPP consent
  - PPAs normally include an indemnity for financial effects of changes in law

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DO EXISTING IPP CONTRACTS FIT IN (2)

- Voluntary Negotiation
  - create a climate for voluntary renegotiation
  - put incentives into market rules for IPPs
  - are IPPs paid for ancillary services - if not maybe cash incentive
  - consider special capacity payments

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WHY NEW IPP CONTRACTS IN A DEVELOPING MARKET?

- New electricity markets need time to get off the ground
- Need to build confidence in the market mechanism
- Eliminating the generation planning responsibility - like taking the training wheels off a bicycle
- The non-availability of IPP contracts may freeze generation development

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IF NEW IPP CONTRACTS ARE APPROPRIATE, MAKE THEM FLEXIBLE

- Recognise requirements of long term lenders and equity providers
- Design contracts to fit into the new market e.g. UK contracts for differences
- Make contracts transferable to the right buyer after restructuring (subject to safeguards as to its credit)
- Give the buyer the right to bid power into the market
- Give the buyer control over plant commitment and dispatch

(cms)

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COMPONENT 1 - MARKET AND INDUSTRY STRUCTURE

- Structure of power market
- Roles and functions of transmission company
- Role, functions, implementation timing and process for ISO
- Creation of multiple distribution companies - should there be:
  - separation of distribution and retail
  - introduction of retail competition
- Framework for market rules, third party access code, wheeling charges
- Alternatives for competition with limited unbundling
- Private sector participation in transmission
- Interstate power trading
- Support for process to ensure stakeholder agreement to model developed

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COMPONENT 2 - ENERGY CONSERVATION, EFFICIENCY AND DIVERSITY

- Advice on policy to promote energy efficiency initiatives post reform and post privatization
- Advice on policy relating to adoption of appropriate instruments for implementation of fuel diversity and security policies within a competitive market
- Advice on policy and programs to ensure environmental protection initiatives and programs are not inhibited or adversely affected by reform programme

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COMPONENT 3 - PUBLIC AWARENESS

- Development of long term public awareness strategy
- Undertaking of activities to:
  - lay the foundations for the long term public awareness strategy
  - deal with the short term issues relating to the reform programme

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BIG ISSUES

- National Market
- Regional Markets
- State Markets
- Incentives to remove constraints on transmission systems
- Stranded costs arising out of PPA's

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PPAs AND STRANDED COSTS

- SEB's PPAs can be handled in the market
  - A "trader" can operate in the market as though the PPA were a power plant.
  - Check the form of the PPAs allows this to be done
- But market prices will not cover total PPA costs
  - Excess capacity will depress prices below PPA levels
  - Losses will become part of stranded costs

Existing PPAs create financial problems for SEB, not operational problems for a market

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REDUCING STRANDED COSTS

- Use a two part tariff to allow the plant to be dispatched in economic merit
- Award contracts through transparent and competitive tendering (consider having an independent agency run the tender)
- Negotiate early termination and buy out rights (but protect the IPP's outstanding investment)

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CONVERTING STRANDED COSTS TO DEBT

- Some stranded costs may already be debt
  - The stranded portion of actual debt issued by SEB
  - Some long-term PPA and fuel purchase obligations
- Other stranded costs are not now "debt"
  - e.g., costs of keeping or retiring excess personnel and the costs of irrigation and other subsidies
  - Reducing these costs may involve up-front payments that cannot be recovered in current prices

Reducing stranded costs efficiently will require (re)financing that cannot be repaid from competitive prices and hence is "stranded debt"

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THE ENTITY THAT HOLDS STRANDED DEBT

- Some legal entity could hold/repay stranded debt
  - A special-purpose DebtCo could be created by law
  - The SEB "shell" that remains after all operating divisions and personnel are corporatized/ privatized
- Whatever "DebtCo" is, its functions are to:
  - Hold the stranded debt
  - Define periodic CTC amounts needed to service debt
  - Service the debt with payments derived from levies

DebtCo is a passive financial entity operating according to rules, not a player in the market

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ANALYSIS PARALYSIS

- It does not take long to set the scheme
- Implementation does not have to be immediate - if the framework is there the private sector can be adjustable
- Government must lead but stakeholders should be nurtured

SESSION 10
ENHANCING REGIONAL COOPERATION

EMT COUNTRY REVIEW

WORLD BANK
INDIA COUNTRY ASSISTANCE STRATEGY



May 17, 2000

EMT COUNTRY REVIEW

INDIA

CAS DISCUSSION
Framework: Key Questions and Considerations

HOW TO HELP INDIA DEAL WITH PRESSURES FOR GRADUALISM AND CONSTRAINTS OF DEEP POVERTY.

HOW TO HELP INDIA RAISE CASH FOR RESTRUCTURING PRIOR TO PRIVATIZATION.

REGULATORY CHALLENGE - CONSUMERS' INTERESTS CAN NOT BE PROTECTED IN THE ABSENCE OF A VIABLE POWER INDUSTRY.

ROLE OF RURAL ENERGY, DSM IN POWER REFORM.

ENVIRONMENTAL AND SOCIAL CONSIDERATIONS.

BANK INTERNAL - BUDGETS, DECENTRALIZATION.

EMT COUNTRY REVIEW INDIA

COUNTRY SETTING

Bank's Approach at the Moment

INDIA CAS OBJECTIVE: POVERTY REDUCTION THROUGH ACCCELERATED GROWTH AND SOCIAL DEVELOPMENT

COUNTRY ASSISTANCE STRATEGY:

1. SELECTIVITY - FOCUS ON REFORMING STATES
2. SUPPORT FOR POLICY REFORMS
3. DIRECT POVERTY ALLEVIATION PROGRAMS
4. SOCIAL AND ENVIRONMENTAL CONCERNS
5. PROMOTION OF PRIVATE SECTOR DEVELOPMENT

OUTCOMES: RAISING PER CAPITA INCOMES, REDUCING POVERTY, MODERATING POPULATION GROWTH RATE.

EMT COUNTRY REVIEW INDIA

PAST EFFORT AND IMPACT

What Have We Done Over Time?

POWER: CENTRAL GOVERNMENT UTILITIES, STATE ELECTRICITY BOARDS (1980s), FINANCIAL INTERMEDIARY (PFC), PRIVATE UTILITIES, AND RECENTLY STATE POWER RESTRUCTURING (1990s).

COAL: FROM CONVENTIONAL MINING PROJECTS TO ONGOING COAL SECTOR LIBERALIZATION.

OIL & GAS: FROM CONVENTIONAL OIL & GAS PROJECTS TO INITIALIZATION OF LIBERALIZATION (EARLY 1990s), WITHDRAWAL FROM THE SECTOR IN MID-1990s.

RENEWABLE ENERGY: SUPPORT TO INDIA'S PROGRAM (ACTIVE - AND LARGEST IN THE DEVELOPING WORLD).

PAST EFFORT AND IMPACT
Recent Highlights

POWER: DISTRIBUTION PRIVATIZED IN ORISSA, REGULATORY COMMISSIONS AT THE CENTER (CERC) AND IN FIVE STATES FOLLOWING THE ORISSA REFORM LEGISLATION (PLUS A FEW TARIFF COMMISSIONS), TARIFF ORDERS, BULK POWER MARKET, AND GRID CODE.

COAL: PRICE LIBERALIZATION & THE FIRST PRIVATE CAPTIVE MINING PROJECTS.

OIL & GAS: VISION 2020 - COMMITTEE ON FUTURE STRATEGY FOR THE SECTOR, LNG DEVELOPMENTS

RENEWABLE ENERGY: PROGRESS IN SEVERAL STATES, IREDA SUPPORT (INCLUDING EFFICIENCY/DSM).

PAST EFFORT AND IMPACT
Key Lessons

OPERATIONS WITH **CENTRAL AND PRIVATE UTILITIES** GENERALLY SUCCESSFUL (APART FROM SOCIAL ISSUES IN SOME NTPC AND COAL INDIA INVESTMENT PROJECTS).

OPERATIONS WITH **SEBs** HAVE LARGELY FAILED (AND INVESTMENTS SUBSTANTIALLY DELAYED).

OIL & GAS OPERATIONS MARGINALLY SUCCESSFUL: INVESTMENTS IMPLEMENTED BUT LIMITED IMPACT ON SECTOR POLICIES.

COAL: PAST (INVESTMENT) PROJECTS SUCCESSFUL, CURRENT LIBERALIZATION EFFORT UNDERWAY (WITH SUBSTANTIAL DELAYS IN NON-PRICE AREAS).

EMT COUNTRY REVIEW INDIA

PAST EFFORT AND IMPACT
Key Lessons

RENEWABLE ENERGY: ONGOING PROJECTS RATED SATISFACTORY (NO AUDITS AVAILABLE).

ENERGY SECTOR WORK: GENERAL SECTOR STUDIES (POWER IN 1989 AND 1991, ENERGY IN 1996) HAVE HAD LIMITED IMPACT, WITH THE EXCEPTION OF THE 1991 STUDY'S CONTRIBUTION TO INITIAL POWERGRID WORK.

OTHER ADVISORY/POLICY DIALOGUE EFFORTS LINKED TO OPERATIONS HAVE BEEN MUCH MORE SUCCESSFUL - SEE OED's CONCLUSION (SLIDE 10).

ENVIRONMENT SECTOR WORK: PHASE 1 WAS WELL-RECEIVED; ONGOING PHASE 2 FOR CAPACITY BUILDING IN REFORMING STATES.

EMT COUNTRY REVIEW INDIA

PAST EFFORT AND IMPACT
Key Lessons

SELECTIVITY FOR MAXIMUM EFFECTIVENESS WITH LIMITED RESOURCES:

GRADUATES - OUT OF OIL AND GAS, NTPC, PFC
FOCUS STATES
LONG-TERM & FLEXIBLE - ADAPTABLE LENDING (APLs), ADJUSTMENT LENDING (SECALs, SALs), IFC

DECENTRALIZATION TO THE FIELD

EFFECTIVENESS & RESPONSIVENESS
BUDGET

DFID LINKAGE AND TRUST FUNDS IN PARTICULAR **JAPAN PHRD** GRANTS HAVE BEEN HIGHLY BENEFICIAL.

EMT COUNTRY REVIEW

INDIA



OED's 1999 COUNTRY SECTOR REVIEW "MEETING INDIA'S ENERGY NEEDS 1978-1998":

"OED strongly supports the South Asia region's strategy for the energy sector, initiated in 1993, that concentrated all its power sector resources into promoting SEB structural reform and only financed distribution system upgrading. The strategy is highly commendable for its relevance to India's development objectives, its efficacy in rehabilitating a critically weakened sector, its efficiency in use of bank resources, and its mobilization of private sector resources. In light of the radical institutional changes that are being implemented, the reform is likely to be sustainable. OED deems this a best practice model that should be emulated throughout the Bank's energy sector portfolio."

EMT COUNTRY REVIEW

INDIA

CURRENT WORK



PORTFOLIO - 13 ONGOING INVESTMENT OPERATIONS:

NATHPA JHAKRI HYDRO (89)
NORTHERN REGION TRANSMISSION (90)
RENEWABLE ENERGY & ALTERNATE ENERGY (GEF) (92)
POWERGRID I (93)
ORISSA POWER (96)
COAL SECTOR (AND ESMP) & JBIC-ADMINISTRATION (97)
HARYANA (98) AND ANDHRA POWER (99).

RENEWABLE II (FROM MAY 1998 TO JUNE 2000)
ENERGY EFFICIENCY (GEF) (98 TO JUNE 2000)
POWERGRID II (98 TO ?)

EMT COUNTRY REVIEW

INDIA



PORTFOLIO RATINGS:

10 ONGOING "REGULAR" OPERATIONS - 8 BANK, 1 GEF AND 1 JBIC ADMINISTRATION SERVICE:

8 RATED SATISFACTORY (NOT "PROBLEM-FREE")
2 RATED UNSATISFACTORY - HARYANA POWER (REFORM ON HOLD SINCE LATE 1999, POSSIBLY NOW BEING RESUMED) & COAL SECTOR (CONTINUING DELAYS IN LEGAL & REGULATORY FRAMEWORK).

3 OTHER "ONGOING" OPERATIONS (FORMAL APPROVAL PENDING SINCE MAY 1998 DUE TO SANCTIONS), NO FORMAL RATINGS, GENERALLY SATISFACTORY.

EMT COUNTRY REVIEW

INDIA

CURRENT WORK PROGRAM

Portfolio cont. - Advisory/Policy Activities:



ENVIRONMENTAL IMPACTS IN THE POWER SECTOR - PHASE 2 UNDERWAY IN ANDHRA, HARYANA AND ORISSA.

DSM IN STATE POWER REFORM PROJECTS, INCLUDING AIJ * ACTIVITY, FUNDED BY NORWAY, FOR INTEGRATED AGRICULTURAL DSM UNDERWAY IN ANDHRA, AND

POWER SUPPLY FOR AGRICULTURE - EXTENSIVE FIELD WORK IN ANDHRA AND HARYANA.

RURAL ENERGY SECTOR WORK - ACTIVITY JUST STARTED.

HYDRO POWER INITIATIVE - AN ATTEMPT TO ACCELERATE HYDRO PROJECT PREPARATION AT THE CENTER.

* AIJ = ACTIVITIES IMPLEMENTED JOINTLY

EMT COUNTRY REVIEW

INDIA



REFORM CLUB - MEETINGS/VISITS * TO EXCHANGE VIEWS AND EXPERIENCES AMONG REFORMING STATES.

DIALOGUE/STUDIES ON BULK POWER TARIFFS AND MARKETS AND RELATED REGULATIONS/INSTITUTIONS.

DIALOGUE WITH THE CENTRAL GOVERNMENT AND OTHER DONORS.

INDEPENDENT REVIEW OF ORISSA EXPERIENCE.

* FOLLOWING 1993 CONFERENCE ON POWER SECTOR REFORMS AND SEMINARS ON COMPETITIVE BIDDING FOR GENERATION AND DISTRIBUTION PRIVATIZATION.

EMT COUNTRY REVIEW

INDIA

CURRENT WORK I



PIPELINE IN THE CURRENT WORK PROGRAM:

3 OPERATIONS - RENEWABLE II, ENERGY EFFICIENCY, AND POWERGRID II - POSTPONED IN 5/98.

ANOTHER BANK RENEWABLE/RURAL ENERGY PROJECT
GEF PROJECT - SOLAR THERMAL w/ KfW
POWERGRID III

STATE POWER REFORM OPERATIONS IN 6 STATES, DISCUSSIONS WITH OTHER STATES.

EMT COUNTRY REVIEW

INDIA

CURRENT WORK PROGRAM

Status of Pipeline

PROSPECTIVE OPERATIONS INCLUDE:

FY00 - UP POWER (APRIL 25, 2000)
FY01 & BEYOND - STATE REFORM PROJECTS */
ANDHRA, HARYANA, KARNATAKA,
ORISSA, RAJASTHAN, AND UTTAR PRADESH
RENEWABLE III, POWERGRID III

*/ SCHEDULE AND LENDING INSTRUMENT (INVESTMENT AND/OR ADJUSTMENT/CASH) DEPENDS ON ACHIEVEMENT OF AGREED MILESTONES AND FISCAL DIALOGUE/ECONOMIC/GOVERNANCE REFORMS.

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INDIA

CURRENT WORK PROGRAM

Coordination And Cooperation With IFC

IFC INPUTS TO REFORM DIALOGUE, IN PARTICULAR DISTRIBUTION PRIVATIZATION,
IFC INVESTMENTS IN IPPs IN ANDHRA AND ORISSA, AND
PLANNED IFC INVESTMENTS IN PRIVATE DISTRIBUTION COMPANIES, STARTING WITH ORISSA.

POSSIBLE JOINT IFC/BANK OPERATIONS (IFC EQUITY/ LOANS AND BANK GUARANTEES) TO HELP LAUNCH GIGA IPPs - CALLED MEGA POWER PROJECTS IN INDIA.

IFC INVESTMENTS IN PRIVATE COAL MINING - (1st IN 99)

IFC INVOLVEMENT IN RENEWABLE, OIL & GAS.

EMT COUNTRY REVIEW INDIA

OUR STRATEGY

Sector Target for 2010 and Why?

THERE ARE TWO SPECIFIC ENERGY SECTOR TARGETS AMONG THE 10 SPECIFIC BANK GROUP CONTRIBUTIONS IN THE VISION 2010 IN THE INDIA CAS:

1. COMPLETION OF THE RESTRUCTURING OF STATE POWER SECTORS IN SIX MAJOR STATES - COMPLEMENTING ANOTHER VISION ITEM ECONOMIC AND FINANCIAL RESTRUCTURING IN SIX MAJOR STATES.

2. PHYSICAL INVESTMENT TARGETS, TO BE ACHIEVED THROUGH BANK FINANCING AND COFINANCING, IN STATE POWER OPERATIONS AND OTHER SUPPORTING ENERGY OPERATIONS, TO IMPROVE SUPPLY/EFFICIENCY/IMPACT.

TO HELP ACHIEVE CAS AND BROADER OUTCOMES.

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KEY SECTOR ISSUES

GRADUALISM - GOOD AWARENESS/UNDERSTANDING OF KEY ISSUES AND OPTIONS, BUT GREAT DIFFICULTY IN DECISION-MAKING AND AGGRESSIVE IMPLEMENTATION.

POWER - (1) BANKCRUPTCY AND CORRUPTION OF STATE-LEVEL UTILITIES, FISCAL BURDEN, (2) FISCAL CRISIS OF THEIR OWNERS (STATE GOVERNMENTS), (3) PACE OF POWER MARKET/GRID DEVELOPMENT.
OIL & GAS - VISIBLE PROGRESS, STILL SLOW PACE OF PRICE LIBERALIZATION AND PRIVATE PARTICIPATION.
COAL - SLOW PACE OF MARKET LIBERALIZATION.
RENEWABLE/EFFICIENCY - LOCAL IMPACT, COST AND/OR INTEREST/PRIORITIES.

THE POOR ULTIMATELY PAY/CARRY THE BURDEN



THE CENTRAL GOVERNMENT AND THE BANK HAVE A CLEAR UNDERSTANDING ABOUT THE INDIA CAS.

FOCUS STATES AND KEY CLIENTS ARE COMMITTED TO REFORM AND APPRECIATE THE BANK'S SUPPORT.

A VIBRANT DEMOCRACY, WITH:

- SOLID ECONOMIC GROWTH AND PROSPECTS.
- RESPECTED INDEPENDENT LEGAL SYSTEM.
- FUNCTIONING LOCAL CAPITAL MARKETS.
- FAST-GROWING PRIVATE SECTOR.
- FREE PRESS.

VAST/GREAT EDUCATED/TALENTED WORK FORCE.

SWOT Analysis of the India Energy Program



Strengths

BROAD CONSENSUS IN THE DONOR COMMUNITY ON THE POWER SECTOR REFORM AGENDA (WITH THE NOTABLE EXCEPTION OF ADB FOR DISTRIBUTION PRIVATIZATION IN STATE POWER REFORM).

ACTIVE PARTNERSHIP WITH DFID (SIGNIFICANT SOURCE OF GRANT AID), ALSO CIDA, JBIC, KfW, USAID.

BANK GROUP INTERNAL: BANK AND IFC ENERGY PROGRAMS COORDINATED AND ALIGNED WITH THE CAS.

SUCCESSFUL DECENTRALIZATION, INCLUDING HALF OF THE ENERGY TEAM IN THE FIELD.

EMT COUNTRY REVIEW INDIA

SWOT Analysis
Weaknesses



INDIA IS A VERY POOR COUNTRY, POVERTY IS A FUNDAMENTAL CONSTRAINT, MAKING IT MUCH MORE DIFFICULT TO MAKE RAPID PRICE ADJUSTMENTS IN INDIA.

FINANCIAL CRISIS OF STATE POWER UTILITES, FISCAL CRISIS OF THEIR ONWERS, YET GRADUALISM IN A VIBRANT DEMOCRACY WITH POPULISM, ENTRENCHED ENTITLEMENTS/INTERESTS/PATRONAGE.

INDIA'S FEDERAL STRUCTURE AND CONSIDERABLE (AND INCREASING) STATE AUTONOMY IS AN ADDITIONAL CHALLENGE - IN ADDITION TO BEING A STRENGTH.

LABOR REDEPLOYMENT/LAWS & REGULATIONS/UNIONS.

EMT COUNTRY REVIEW INDIA

SWOT Analysis
Weaknesses



CENTRAL GOVERNMENT'S OWN GRADUALISM AND COMMITMENT TO REFORMING ITS OWN ENERGY AGENCIES - REFLECTING THE SAME POLITICAL UNCERTAINTIES.

BANK INTERNAL:

NEED TO PROVIDE RESTRUCTURING FINANCING.

CURRENT PROGRAM IS FOCUSED ON REFORM, WHICH ALSO PROMOTES ENVIRONMENT, BUT IS STILL LIGHT ON RURAL ENERGY (APART FROM LOCAL RENEWABLES).

BUDGET CONSTRAINTS, AND RELATED STAFF CONSTRAINTS.

EMT COUNTRY REVIEW

INDIA

CHANCE TO DIRECTLY HELP IMPLEMENT FUNDAMENTAL CHANGES IN THE POWER SECTOR IN SEVERAL (VERY LARGE) STATES AND THEREBY CONTRIBUTE TO THE OVERALL STATE ECONOMIC DEVELOPMENT AND FISCAL RESTRUCTURING (INCLUDING GOVERNANCE/CORRUPTION) AND POVERTY ALLEVIATION.

CATALYTIC IMPACT ACROSS INDIA, BEYOND STATES WHERE THE BANK IS DIRECTLY ACTIVE, THEREBY REACHING TOWARDS ONE BILLION PEOPLE - INCLUDING A LARGE SHARE OF THE WORLD'S POOREST.

HELP INDIA ATTRACT PRIVATE INVESTMENT AND EASE INVESTMENT HURDLES FOR PRIVATE INVESTORS.

EMT COUNTRY REVIEW

INDIA

SWOT Analysis

Opportunities

IMPROVE UNDERSTANDING/AWARENESS AND HELP INCORPORATE ENVIRONMENTAL CONSIDERATIONS INTO THE COAL CHAIN AND POWER SECTOR DECISION-MAKING.

INDOOR AND URBAN POLLUTION ISSUES.

PROMOTE BETTER INCORPORATION OF SOCIAL CONSIDERATIONS, INTO THE OPERATIONS OF THE NEW STATE-LEVEL UTILITIES EMERGING FROM REFORM, AND KEY CENTRAL SECTOR POWER AND COAL COMPANIES.



POLITICAL DEVELOPMENTS, STATE-BY-STATE, AND AT THE NATIONAL LEVEL - "CONTINUOUS ELECTION MODE".

FINANCIAL/FISCAL CRISIS AND GRADUALISM (COMMITMENT TO REFORM NOTHWITHSTANDING).

POWER CRISIS (CHRONIC SHORTAGES)

ALL THREE PUT TOGETHER THREATHEN INDIA'S ABILITY:

TO ATTRACT INVESTORS,
TO SURVIVE REFORM TRANSITION PERIODS, AND
TO MOVE FROM TRANSITION ARRANGEMENTS TO MORE COMPETITIVE ARRANGEMENTS.

SWOT Analysis
Threats



BANK INTERNAL:

CONTINUING BUDGET CONSTRAINTS, INABILITY TO RESPOND TO

CURRENT CLIENTS AND
NEW REQUESTS FROM OTHER STATES AND/OR
OTHER AREAS INCLUDING RURAL ENERGY.

POSSIBLE BANK WITHDRAWAL FROM COMMERCIAL ENERGY (FOR POLICY AND/OR BUDGET REASONS) WOULD LEAD TO INABILITY TO WORK ON THE CURRENT HIGHEST PRIORITY ENERGY/DEVELOPMENT ISSUE - STATE POWER.

EMT COUNTRY REVIEW

INDIA



HOW TO HELP INDIA DEAL WITH PRESSURES FOR GRADUALISM AND CONSTRAINTS OF DEEP POVERTY.

HOW TO HELP INDIA RAISE CASH FOR RESTRUCTURING PRIOR TO PRIVATIZATION.

REGULATORY CHALLENGE - CONSUMERS' INTERESTS CAN NOT BE PROTECTED IN THE ABSENCE OF A VIABLE POWER INDUSTRY.

ROLE OF RURAL ENERGY, DSM IN POWER REFORM.

ENVIRONMENTAL AND SOCIAL CONSIDERATIONS.

BANK INTERNAL - BUDGETS, DECENTRALIZATION.

State Level Issues

Gajendra Haldea

STATE-LEVEL ISSUES

- Dismantling of SEBs.
- Structure of new entities in Transmission & Distribution.
- T&D losses.
- Tariff rationalisation.

RESTRUCTURING OF SEBs

- Creation of Transcos.
- Transcos not to sell power.
- Gencos & Discoms may continue together.
- Evolution of Discom Circles.
- Privatization of Discoms.
- Residual Gencoms.

TRANSMISSION REFORMS

- Transcom to be non-discriminatory.
- Open access.
- No financial interest in generation or distribution.
- Merit-order dispatch.
- Creation of Transmission Highways.
- Private investment to be encouraged.

DISTRIBUTION REFORMS

Evolution of viable circles.

Comprehensive regulatory framework.

T & D losses.

Open access for H.T. consumers.

TARIFF RATIONALISATION

- Tariff regulations.
- Predictability of tariffs.
- Cross subsidisation.
- Direct subsidies.
- Trading/Special agreements to be exempt.
- Development of markets.

POWER SECTOR REFORM IN BANGLADESH

A. N. M. RIZWAN

☛ WHY REFORM ?

- CONFLICT OF INTEREST

- LACK OF AUTONOMY
- LACK OF COMPETITION

- LACK OF MOTIVATION
- SUBSTANDARD CUSTOMER SERVICE
- SCARCITY OF FUND FOR INVESTMENT

REFORM GOALS?

- IMPROVE SERVICE QUALITY

- COMMERCIALIZE SECTOR ENTITIES
- INTRODUCE COMPETITION
- ATTRACT INVESTMENT
- ACCELERATE ECONOMIC GROWTH

☛ HOW TO REFORM ?

- ESTABLISH PROFIT CENTERS
- CORPORATIZE SECTOR ENTITIES
- PRIVATE PARTICIPATION
- INDEPENDENT REGULATION
- REDEFINING GOVERNMENT ROLE

BACKGROUND (Contd.)

- RURAL ELECTRIFICATION BOARD (REB) WAS CREATED IN 1978 TO REACH ELECTRICITY TO RURAL BANGLADESH.

  - THUS TWO SEPARATE ENTITIES STARTED FUNCTIONING IN THE POWER SECTOR FROM 1978

- IN 1991 DHAKA ELECTRIC SUPPLY AUTHORITY (DESA) WAS CREATED TO PROVIDE IMPROVED SERVICES TO CONSUMERS OF GREATER DHAKA AREA.

POWER SECTOR REFORM IN BANGLADESH

BACKGROUND

- WAPDA (WATER AND POWER DEVELOPMENT AUTHORITY) WAS BIFURCATED INTO BPDB (BANGLADESH POWER DEVELOPMENT BOARD) AND BWDB (BANGLADESH WATER DEVELOPMENT BOARD) AFTER LIBERATION OF BANGLADESH TO CATER TO THE GROWING NEEDS IN THESE SECTORS.

  - BPDB REMAINED AS THE VERTICALLY INTEGRATED ENTITY RESPONSIBLE FOR GENERATION, TRANSMISSION AND DISTRIBUTION OF ELECTRICITY IN THE ENTIRE COUNTRY.

  - ALL DEVELOPMENT PROJECTS AND POWER PLANT OVERHAULING PROJECTS PROGRESSED THROUGH DONOR FUNDS.

BACKGROUND (Contd.)

- THREE SEPARATE ENTITIES STARTED FUNCTIONING IN POWER SECTOR SINCE 1991.
- RESULTS FELL FAR SHORT OF EXPECTATION.
- SYSTEM LOSS 39.1% IN 91-92, HIGH ACCOUNTS RECEIVABLES, DEPLORABLE NETWORK.
- EXCEPTING REB, RESULTS OF COMMERCIAL FUNCTION OF DESA AND DISTRIBUTION SECTOR UNDER BPDB BECAME UNACCEPTABLE.
- THERE WAS SERIOUS LIQUIDITY CRISIS.
- WORSE WAS THAT, DONORS STOPPED FINANCING GENERATION, TRANSMISSION AND DISTRIBUTION PROJECTS UNDER BPDB AND DESA FROM 1990.
- GENERATION ADDITION OF 200-MW-A-YEAR ACTIVITY GOT HALTED, REPAIR OF POWER PLANTS COULD NOT BE DONE TIMELY, AUGMENTATION OF SUBSTATIONS AND RENOVATION OF TRANSMISSION SYSTEMS AND EXPANSION OF

BACKGROUND (Contd.)

- POWER SECTOR FACED A TERRIBLE FUNDING CRISIS.

REFORM INITIATIVE

- GOVT. CONSIDERED WAYS AND MEANS OF SOLVING THE CRISIS AND AN 8-MEMBER INTERMINISTERIAL WORKING GROUP CONSTITUTED IN FEB, 1993 BY THE HONB'LE PRESIDENT OF THE PEOPLES REPUBLIC OF BANGLADESH FOR REVIEWING THE NEED AND STUDYING FEASIBILITY OF PRIVATE INVESTMENT ALONG WITH PUBLIC ENTERPRISES IN POWER SECTOR.

REFORM INITIATIVE (contd.)

☛ COMMITTEE RECOMMENDED FOR :

- REFORMING POWER SECTOR AND CREATION OF AN ENABLING ENVIRONMENT TO ATTRACT PRIVATE PARTICIPATION IN THE SECTOR.
- BPDB SHOULD BE RESTRUCTURED ALONG FUNCTIONAL LINE AND WOULD BE UNBUNDLED.
- TO BEGIN WITH CREATION OF COMPANY TO TAKE CARE OF GENERATION & TRANSMISSION.
- SEPARATION OF TRANSMISSION IN THE LONGER TERM.
- CREATION OF DISTRIBUTION COMPANIES.
- MAKING DESA THE FOCUS OF REFORM AND CONVERSION OF DESA INTO A PUBLIC LIMITED COMPANY.
- PRIVATE INVESTMENT IN GENERATION.
- PRIVATE INVESTMENT IN DISTRIBUTION ON EXPERIMENTAL BASIS.
- FRAMING RULE AND CODE OF PRACTICE.
- CREATION OF POWER CELL TO CARRY OUT REFORM.
- CREATION OF A REGULATORY BODY

REFORM INITIATIVE (contd.)

- CABINET APPROVED WORKING GROUP'S REPORT ON 2ND SEP'94.

- A KEY DOCUMENT FOR POWER SECTOR REFORM.

- NATIONAL ENERGY POLICY INCORPORATED THE RECOMMENDATIONS AND GAZATTED ON 15 JANUARY 1996

- POLICY STATEMENT ON POWER SECTOR REFORMS APPROVED AND ANNOUNCED BY THE GOVERNMENT IN JANUARY, 2000

- MAIN COMPONENTS OF THE POLICY STATEMENT:

  SEGREGATION OF POWER GENERATION, TRANSMISSION AND DISTRIBUTION FUNCTIONS INTO SEPARATE SERVICES.

- ⇨ *CORPORATIZATION AND COMMERCIALISATION OF EMERGING POWER SECTOR ENTITIES.*
- ⇨ *CREATION OF A REGULATORY COMMISSION*
- ⇨ *PRIVATE SECTOR PARTICIPATION IN POWER GENERATION AND DISTRIBUTION.*
- ⇨ *INTRODUCTION OF COST REFLECTIVE TARIFF FOR FINANCIAL VIABILITY O THE UTILITIES AND PROMOTING EFFICIENT USE OF ELECTRICITY.*
- ⇨ *DEVELOPMENT OF DEMAND MANAGEMENT INCLUDING ENERGY EFFICIENCY MEASURES TO CONSERVE ENERGY.*

LONG TERM GOALS FOR THE POWER SECTOR REFORM AS IN THE POLICY STATEMENT.

- ⇨ *TO MAKE ELECTRICITY AVAILABLE FOR ALL*
- ⇨ *TO ENSURE RELIABLE AND QUALITY SUPPLY OF ELECTRICTY*
- ⇨ *TO PROVIDE ELECTRICITY AT A REASONABLE PRICE*

IMPLEMENTATION OF THE REFORM

- POWER CELL CREATED AND ENTRUSTED WITH IMPLEMENTATION OF REFORM AND IPP.

- RPC CREATED IN [illegible] COMPANIES ACT TO IMPLEME[illegible]

- ADB AGREED TO FINANCE TRANSMISSION AND DISTRIBUTION SECTORS UNDER ITS NINTH POWER LOAN SUBJECT TO CREATION OF A POWER GRID COMPANY TO TAKE OVER TRANSMISSION FUNCTIONS OF BPDB; AND A DISTRIBUTION COMPANY TO TAKE OVER FUNCTIONS OF DESA GRADUALLY.

- GOVT. DECIDED TO CREATE POWER GRID COMPANY OF BANGLADESH LTD. (PGCB) IN THE ECNEC MEETING HELD ON 18 SEPTEMBER'96, WHILE APPROVING THE COMILLA- MEGHNAGHAT- HARIPUR TRANSMISSION LINE (A COMPONENT OF NINTH POWER PROJECT & NATIONAL LOAD DESPATCH CENTRE PROJECT.)

IMPLEMENTATION OF THE REFORM (Contd.)

- POWER GRID COMPANY OF BANGLADESH LTD. (PGCB) ESTABLISHED ON 21 NOVEMBER'96 UNDER THE COMPANIES ACT, 1994. 100% SHARE HOLDING BY BPDB

- PRESENT MANAGEMENT RECRUITED & JOINED ON 07-07-97.

- DHAKA ELECTRIC SUPPLY COMPANY (DESCO) CREATED IN 1996.

- GOVT ANNOUNCED PRIVATE SECTOR GENERATION POLICY IN 1996.

IMPLEMENTATION OF THE REFORM (Contd.)

- EFFORTS TO BRING IPP GENERATION STARTED IN THE COUNTRY SIDE BY SIDE WITH PUBLIC SECTOR GENERATION.

- ADB'S NINTH POWER LOAN AGREEMENT SIGNED IN JAN,1997.

- ADB'S DHAKA POWER SYSTEM UPGRADE PROJECT SIGNED ON 12-1-2000

- ASHUGONJ POWER STATION BEING CORPORATIZED AS ADB'S LOAN CONDITION.

IMPLEMENTATION OF THE REFORM (Contd.)

- THREE BARGE MOUNTED IPPs 118, 130 & 110 MW ALREADY HOOKED TO NATIONAL GRID.

- TWO MORE LAND BASED IPP SIGNED (450 MW + 360 MW).

- EXPECTED TO BE COMMISSIONED BY 2002.

- LOWEST TARIFF (1.71 CENT/ KWH) OBTAINED.

- TOTAL IPP WILL BE 2238 MW.

IMPLEMENTATION OF THE REFORM (Contd.)

- TO ACCOMMODATE THE REFORM, LEGAL FRAME WORK (BANGLADESH ELECTRICITY ACT, 1999) DRAFTED.

- DRAFT BILL SUBMITTED TO THE CABINET WHICH APPROVED IT IN PRINCIPLE IN NOVEMBER 1999.

- DRAFT BILL PROVIDES FOR A REGULATORY COMMISSION.

- REGULATORY COMMISSION WILL

  - ISSUES LICENCES
  - SETS PRICES
  - MONITORS FINANCIAL VIABILITY OF LICENSEES
  - SETS AND MONITORS QUALITY OF SERVICES
  - ARBITRATES DISPUTES BETWEEN CONSUMERS AND LICENSEES

IMPLEMENTATION OF THE REFORM (Contd.)

- MONITORS AND ENFORCES LICENCE CONDITIONS
- DISSEMINATES INFORMATION
- ADVISES GOVERNMENT ON ENERGY MATTERS

STATUS OF THE REGULATORY COMMISSION

- INDEPENDENT BODY TO A GREAT EXTENT.
- ONE CHAIRMAN - EQUIVALENT TO JUDGE OF APPELLATE DIVISION
- FOUR MEMBERS - EQUIVALENT TO JUDGE OF HIGH COURT DIVISION
- SENIOR MOST MEMBER WILL BE THE CHAIRMAN

☛ SOME IN-HOUSE INITIATIVE OF REFORMS BY BPDB

- **BPDB CREATED THE FOLLOWING COMPANIES FOR BETTER FUNCTIONING :**
  - **BANGLADESH POWER ENGINEERING COMPANY LTD. (BPEC)**
  - **BANGLADESH RENEWABLE ENERGY COMPANY LTD. (BREC)**
  - **BANGLADESH POWER SERVICES COMPANY LTD. (BPSC)**
  - **BANGLADESH PC POLE COMPANY LTD. (BPPC)**

Management Efficiency for Generation

- Haripur Power Station (100 MW; to be enhanced to 209 MW) has been converted as Autonomous Strategic Business Unit to ensure efficiency and accountability.

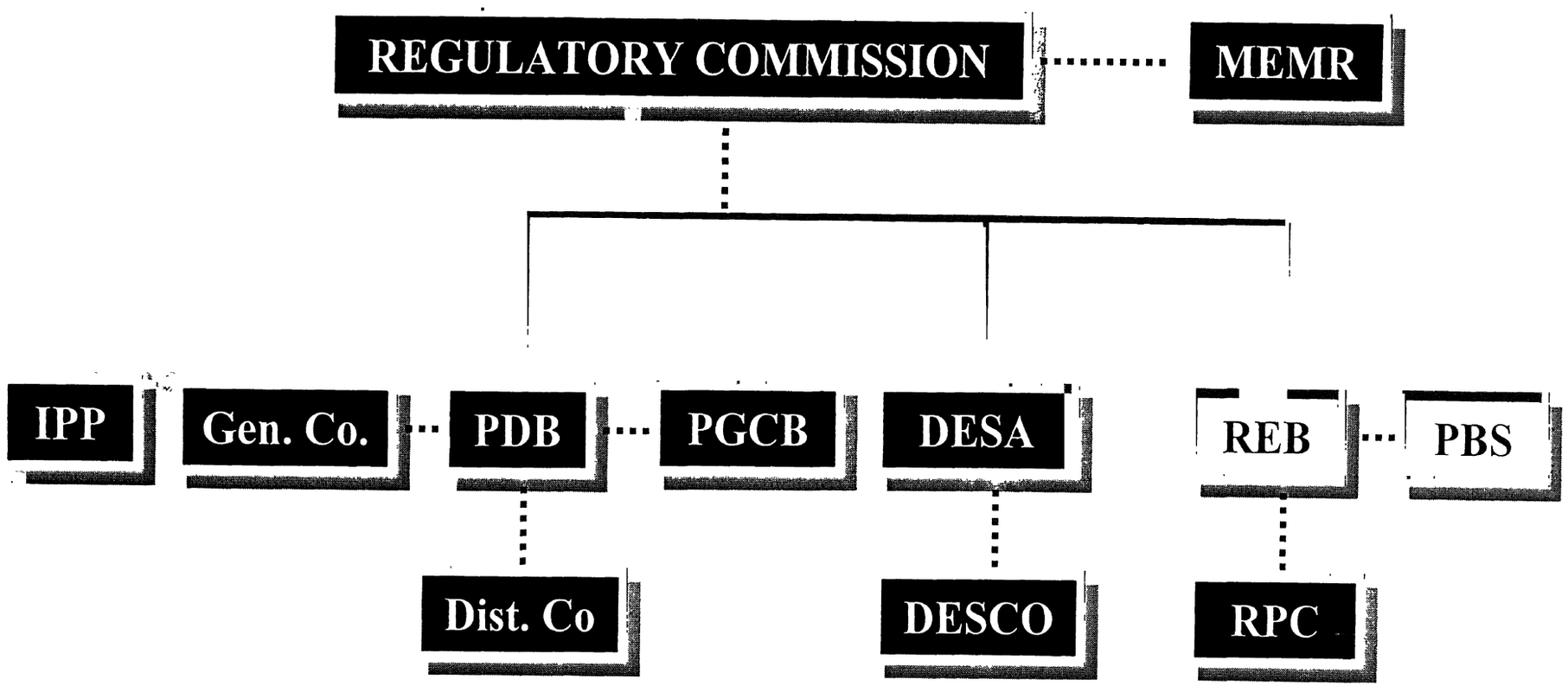
- Other plants are planned to be corporatized in phases so that all the Power Plants will be subsidiaries of a national corporatized generating company owned by BPDB.

- Efficient corporate management culture will be developed in all the Power Plants.

IN THE DISTRIBUTION SECTOR

- 23 STRAGTEGIC BUSINESS UNITS (SBU) ESTABLISHED AS SEPARATE COST CENTRES WITHIN BPDB.
- ADEQUATE AUTONOMY TO BE PROVIDED TO SBU.
- SBU TO SIGN PPA WITH BPDB.
- CONSUMER COMMITTEES FORMED TO PROTECT CONSUMER'S INTEREST.

FUTURE POWER SECTOR STRUCTURE



THANK YOU
FOR PATIENCE HEARING

SESSION 11
LESSONS LEARNED AND AGENDA FOR FUTURE

Dr A Ramachandran

Dr Arcot Ramachandran is the former Under Secretary General and Executive Director, United Nations Centre for Human Settlements (Habitat); He was also Secretary to Government of India, Department of Science and Technology and Director, Indian Institute of Technology, Madras. Some of the important landmarks during his 15 year stint in the United Nations include the initiatives taken viz. Observance of the World Habitat Day, the 1987 International Year of Shelter for Homeless, the Global Strategy for Shelter to the year 2000, the launching of the Sustainable Cities Programme in 12 cities around the world, the inclusion of the Sustainable Human Settlements Development in the UNCED Plan of Action at the Rio Earth Summit, etc. He has also played a significant role in engineering education at the national and international level.

He is presently associated with a number of organisations dealing with Energy Environment, Human Settlements, Infrastructure Development, etc. He is also the Chairman of the Governing Council of TERI. He has received many recognitions and honours in his illustrious career, the most recent being, Life Time Contribution Award in Engineering for the year 1999 by the Indian National Academy of Engineering.

LIST OF PARTICIPANTS